

# **BROOME TECHNICAL COMMUNITY COLLEGE**



**1967-68  
CATALOG**



# CALENDAR 1967-1968

## SUMMER TERM 1967

Aug. 29	4:30 p.m.	Classes End
Aug. 30, 31, Sept. 1		Examinations
Sept. 7	7:30 p.m.	Graduation
Sept. 8		*Co-operative Period Ends

## FALL TERM 1967

Sept. 11		*Co-operative Period Begins
Sept. 13	9:00 a.m.	Orientation Begins
Sept. 18	7:40 a.m.	Fall Term Classes Begin
Sept. 29		Last Day to Drop Courses without Grade
Oct. 13		Last Day to Drop Courses with "W" Grade
Oct. 27	4:00 p.m.	Mid-term Grades Due
Nov. 22	11:30 a.m.	Classes Dismissed—Thanksgiving
Nov. 27	7:40 a.m.	Classes Resume
Dec. 8	4:30 p.m.	Fall Term Classes End
Dec. 11-13		Examinations
Dec. 14	4:30 p.m.	Christmas Recess Begins
Dec. 18	8:00 a.m.	Grades Due
Dec. 22		*Co-operative Period Ends

## WINTER TERM 1968

Dec. 26		*Co-operative Period Begins
Jan. 2, 1968	7:40 a.m.	Winter Term Classes Begin
Jan. 15		Last Day to Drop Courses without Grade
Jan. 30		Last Day to Drop Courses with "W" Grade
Feb. 7	4:00 p.m.	Mid-term Grades Due
Mar. 11	4:30 p.m.	Winter Term Classes End
Mar. 12-14		Examinations
Mar. 15		*Co-operative Period Ends
Mar. 18		*Co-operative Period Begins
Mar. 15-26		Senior Placement Interviews
Mar. 19	8:00 a.m.	Grades Due

## SPRING TERM 1968

Mar. 27	7:40 a.m.	Spring Term Classes Begin
Apr. 9		Last Day to Drop Courses without Grade
Apr. 12	11:30 a.m.	Classes Dismissed—Good Friday
Apr. 15	7:40 a.m.	Classes Resume
Apr. 30		Last Day to Drop Courses with "W" Grade
May 2	4:00 p.m.	Mid-term Grades Due
June 4	4:30 p.m.	Spring Term Classes End
June 5-7		Examinations
June 11	8:00 a.m.	Grades Due
June 14	7:30 p.m.	Graduation and
		*Co-operative Period Ends

## SUMMER TERM 1968

June 17	7:40 a.m.	Summer Term Classes Begin and
		*Co-operative Period Starts
June 28		Last Day to Drop Courses without Grade
July 4		Classes Dismissed—Independence Day
July 12		Last Day to Drop Courses with "W" Grade
July 24	4:00 p.m.	Mid-term Grades Due
Aug. 26	4:30 p.m.	Summer Term Classes End
Aug. 27-29		Examinations
Sept. 3	8:00 a.m.	Grades Due
Sept. 6	7:30 p.m.	Graduation and
		*Co-operative Period Ends

\*Co-operative Work Period for Electrical, Mechanical Technology students

**1967-68 CATALOG**  
**OF**  
**BROOME TECHNICAL**  
**COMMUNITY COLLEGE**

**Binghamton, N. Y. 13902**

**A Comprehensive Community College**  
**Supervised by the State University of New York**  
**and**  
**Sponsored by the County of Broome**





## **ACCREDITATION**

Broome Technical Community College is a member of the Middle States Association of Colleges and Secondary Schools.

The College is supervised by the State University of New York, and its curriculums are registered by the State Education Department.

The Chemical, Civil, Electrical and Mechanical Technology programs are ECPD accredited Engineering Technology curriculums. ECPD is the Engineers Council for Professional Development, a national organization of engineering societies.

The Dental Hygiene program is accredited by the Council on Dental Education of the American Dental Association.

The College reserves the right at any time to make changes deemed advisable.



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# **ABOUT BROOME TECH**

## **THE COLLEGE**

Broome Technical Community College is a comprehensive community college, which means that it has programs designed to prepare graduates for immediate employment and for transfer to four-year colleges and universities at the junior, or third-year, level.

The College is co-educational, publicly-supported, and has historically attracted about two-thirds of its student body from Broome County and one-third from outside the county.

In addition to its daytime enrollment, which numbered about 1,600 last year, the College has an Evening-Extension Division which had more than 1,700 part-time students in the fall of 1966 and over 800 taking courses during the 1966 Summer Session.

The day student body can be classified into four fairly equal parts, based on study objectives. About one-fourth is enrolled in university-parallel or transfer programs, one-fourth in the business program, one-fourth in engineering technology curriculums, and one-fourth in medically-related courses.

The College is sponsored by Broome County, supervised by the State University of New York, and accredited by both professional and educational organizations. (See page 2.)

## **THE CAMPUS**

The Broome Tech campus is located three miles north of Binghamton on Upper Front Street, which is Route 11 and Route 12 at this point. Seven of the eight buildings form a quadrangle to make a compact campus layout.

The buildings are two stories high, of modern functional design, and made of brick with colored panel-wall facing. They lie in a suburban setting in the virtual center of the college's 62 acres of land.

In addition to classrooms and laboratories, the campus has its own cafeteria, a fine gymnasium and athletic field, and a Little Theater. These facilities add up to make the campus a \$6,000,000 investment in the youth of Broome and surrounding counties. This investment will soon be more than \$14,000,000 as the College's expansion program is being developed.

## **THE COMMUNITY**

The Community is an industrial and agricultural area in New York State's Southern Tier. It is in the approximate center of the state, measuring from East to West, and its southern extremity touches the Pennsylvania state line.

Binghamton is the principal city in Broome County, but it is an integral part of the community known as the Triple Cities. Endicott and Johnson City are the other two cities, but Vestal and other outlying suburbs help to make the community much larger in population and geography than the city limits of Binghamton.

Binghamton has a population of 75,941, yet the Triple Cities area embraces 148,524 people. The population of Broome County is 212,661. Diversified industry has made the community an economically sound one.

The College has become an integral part of the community since it was started in 1947. Many of the campus facilities are offered without charge for use by responsible organizations, and most of the College's curriculums are designed to help fill the economic needs of the county.



## **GROWTH AND EXPANSION**

The rapid growth in student enrollment in recent years has made it necessary for the College to embark on an \$8,000,000 to \$10,000,000 expansion program. A new library building will open in the fall of 1967, and four more buildings are planned to accommodate an anticipated student body of 3,200 by 1974. In addition, three other buildings will be remodeled and enlarged.

The Broome Tech campus was constructed in 1956 to accommodate 900 students, which was about three times the College's enrollment at that time. The student body will reach double that 900 capacity in the fall of 1967, and the only building added to the original campus was Titchener Hall in 1963.

## **HISTORY**

Broome Tech graduated its first class in 1949. These students had entered what was then known as the New York State Institute of Applied Arts and Sciences at Binghamton in the fall of 1947. The original institute was one of five founded in the state in 1946, following the pattern of six agricultural and technical institutes which New York had established earlier in the century. The first programs offered were all occupational in nature and included Chemical, Electrical and Mechanical Technologies, as well as Medical Office and Technical Office Assistants courses.

In 1953 New York relinquished operating control of the school to a new sponsor, the County of Broome, under provisions of the newly-enacted State Community College Law, and the name was changed to Broome County Technical Institute. In 1956 the name was again changed to its present one, Broome Technical Community College, to reflect the increasingly comprehensive nature of its educational offerings.

In keeping with the comprehensive objectives of this community college, a university-parallel curriculum was instituted in the Engineering Sciences in 1959, a two-year program of Liberal Arts and Sciences was started in the fall of 1962, and a transfer program in Business Administration was added in 1963.

X-Ray Technology was added in 1965, Medical Laboratory Technology last year, and Nursing and Environmental Health Technology are new to the campus this year (1967).

For its first five years, the school was housed in a refurbished State Guard armory in downtown Binghamton. This building was gutted by fire in September of 1951, and for the next five years Kalurah Temple and two other buildings in the city provided temporary quarters. In 1957 the college moved to its present campus on the north side of Binghamton on Route 11. The first addition to the original campus came with the construction of Titchener Hall, which was dedicated on May 17, 1963, and a new Library is to be opened in 1967.

# OBJECTIVES OF THE COLLEGE

1. To provide the environment and the experiences which promote the students' vocational competence, individual growth and social responsibility through integration of the following:

**KNOWLEDGE.** The acquisition of facts, principles, theories and insights which are fundamental to the understanding of a specialized field of study and of life itself. Cognizance of common sources of information for further intellectual growth.

**PROFICIENCY.** Development of analytical thinking and language abilities for the comprehension, evaluation and communication of knowledge. Development of laboratory techniques relevant to the students' chosen vocational fields.

**ATTITUDES.** The stimulation for personal growth—vocational, intellectual, cultural and physical. The appreciation of and commitment to desirable social values.

2. To commit the resources of the College to the business, industrial, educational and cultural enrichment of the community.

## DEGREE PROGRAMS OF THE COLLEGE

Graduates of Broome Technical Community College receive associate degrees, and the courses of study fall into four general categories—technical, business, liberal arts and health sciences. Liberal arts courses are included in all curriculums, as it is believed that students need more than technical competence to be successful.

Applicants to the College should consider carefully the type of program they wish to pursue, for the nature of the offerings makes it difficult for a student to switch from one curriculum to another after commencing his studies.

### TECHNICAL PROGRAMS

In the area of technical education, the college offers five programs. One, Engineering Science, is in effect the first two years of an engineering curriculum, and students who do satisfactory work in it should experience little difficulty in transferring to engineering colleges at the third-year level.

The other four are designed to train engineering technicians in the fields of Mechanical Technology, Chemical Technology, Electrical Technology and Civil Technology. Graduates of these programs are prepared for immediate employment in various types of technical work upon leaving the college.

### BUSINESS

The Business curriculum is designed primarily to prepare graduates for immediate employment in one of four fields—Engineering Secretarial, Executive Secretarial, Accounting, and Marketing and Sales. In addition, there is a fifth option, Business Administration. It combines more university-parallel preparation with a minimum of job-oriented courses for the person who plans to continue his college education for a baccalaureate degree, even though he may want to work for a while before transferring to a four-year college.



## LIBERAL ARTS AND SCIENCES

This curriculum is a university-parallel course, designed especially for the student who wishes to transfer to a four-year college or university after graduation. A sound liberal arts education is basic to many of the professions, such as medicine, law or teaching, and applicants who have such a goal would be well advised to make this selection. It is also considered excellent preparation for further schooling in business administration.

Many students simply do not know what field to select as a goal. A liberal arts course may serve as a foundation from which a choice of major study can be made at a later date with a minimum loss of time.

**NOTE**—Students in all programs spend at least one-fourth of their time studying such Liberal Arts subjects as English, psychology, sociology and economics. The College recognizes that, in addition to technical competence, a graduate should study those subjects which help to understand people and their daily working and personal inter-relationships.

## HEALTH SCIENCE

Opportunities for women interested in the health services field are provided in five areas—Dental Hygiene, Medical Office Assistant, Nursing, Medical Laboratory Technology, X-ray Technology programs.

**Dental Hygiene** graduates are qualified to take state licensing examinations which permit them to practice their profession, according to laws of their individual states. They are also eligible to take the National Board examination in the spring prior to graduation or at a later date.

While most of the graduates of this program go to work in dentists' offices, there are many additional employment opportunities. See page 42.

A graduate of this two-year program is also eligible and qualified to pursue a Bachelor of Science degree in Health Education. Formal arrangements for this program have been made with nearby State University College at Cortland, New York, although transfer is possible to other colleges, too.

Those enrolled in the **Medical Office Assistant** program are trained to handle the heavily-increasing load of record-keeping in hospitals, as secretarial practices are stressed as well as medical-related courses. Graduates are also equipped to assist in physician's offices, and to do many routine phases of laboratory work, so that many find employment in hospital laboratories and pharmaceutical companies.

The **Medical Laboratory Technology** program is designed to give students opportunities as technical laboratory assistants or technicians in the biological, chemical and para-medical fields. Thus graduates of this program have a wide range of employment possibilities. These include positions in hospitals, public health and pharmaceutical laboratories, the chemical industry and food processing plants.

Students enrolled in the **X-ray Technology** curriculum are prepared for immediate employment in X-ray rooms of hospitals or in offices of physicians who do X-ray work. A recently enacted New York State law emphasizes the desirability of X-ray technicians having an Associate in Applied Science degree. Graduates of this program are eligible to take the New York State Health Department and/or Civil Service examinations.

Those enrolled in the new **Nursing** program will be qualified to take state licensing examinations after their graduation. This two-year curriculum in bedside nursing is designed to help alleviate the heavy shortage of nurses in Broome County, as well as elsewhere in the state and nation.

The new **Environmental Health Technology** curriculum is expected to appeal mostly to men, although women will also have a future in this field. Purpose of this program is to prepare people to fill the growing need for personnel to work in such pursuits as the control of air and water pollution, food sanitation, ionizing radiation.



# SPECIAL PROGRAMS

## GENERAL STUDIES CERTIFICATE PROGRAM

Students who either lack the minimum requirements for admission to the regular programs of the College, or those who have been out of school for several years, may request enrollment in the General Studies Certificate Program. This is a year-long sequence of study emphasizing the fundamental concepts of English, mathematics and science. Students in this program are not considered regular college students and few college credits are granted for completion of these courses. At the end of the year, students are evaluated by the faculty and must be recommended for entrance to a regular program before being admitted in the subsequent year. This was formerly known as the Pre-Tech program. (See page 64).

## DIPLOMA NURSING

Nurses in diploma training programs at Binghamton General and Binghamton State Hospitals take part of their first year of study at Broome Tech. Under this program these students may participate in all activities of the College.





## **EXTENSION DIVISION**

Credit courses for adults are offered year-round during the evenings and during the Summer Day session. An adult may enroll in any evening course if, in the College's judgment, he has the ability to do college-level classwork and if he has the necessary prerequisites for the course. Full details about these programs are contained in the Catalog available on request from the College's Extension Division.

### **Evening Program**

Evening courses lead to various Extension Division Diplomas (32 semester credit programs in Business; Chemical, Civil, Electrical, and Mechanical Technologies; Production Management; as well as General Studies). These Extension Division Diplomas are the bases of required study for the Associate in Applied Science Degrees in Business and in Industrial Technology, and the Associate in Arts Degree. The evening terms begin September 11, 1967 and January 22, 1968.

### **Summer Session**

Summer credit courses, many of which can be accepted by other colleges for transfer, are available during the days and evenings. Developmental and college preparatory subjects are also available as non-credit offerings. Summer semesters are scheduled to start on June 26, 1967 and June 24, 1968. Summer Session catalogs may be obtained from the Extension Division.

### **Part-Time Day Students**

Enrollments on a part-time basis during day school hours will be on a strict space-available basis. Registration will be conducted by the Extension Division and generally will be held the first day of the term at 8 a.m. in the Student Center. Late registration will be accepted only during the first five class days of the term.

Individuals may register for part-time day enrollment for a maximum of 6 term credit hours by applying directly to the Director of the Extension Division at registration time. In exceptional circumstances, applicants will be permitted to enroll for a maximum of 12 term credit hours, subject to the approval of the Admissions Committee of the College.

A part-time day student will not be permitted to enroll in the subsequent day term if in day courses he has received two "F" grades, two "P" grades, or a "P" and an "F" grade in one day term or in two consecutive day terms. Exceptions to this policy may be considered for unusual circumstances. In these cases students must petition in writing the Director of Extension, who will make final determination.

Part-time students who withdraw from courses must complete the proper termination procedures at the Extension Division office.

All individuals admitted on other than a full-time basis will be considered Extension students, subject to policies governing students in the Extension Division, in addition to regulations governing full-time students. Such enrollment does not automatically make the enrollee a candidate for an Associate Degree.

### **Tuition and Fees**

Residents of New York State will pay \$8 per quarter credit hour as tuition for courses they enroll in. Out-of-state residents must pay \$15.

There is also a student activity fee of \$2 per term for each part-time student enrolled in day classes. This entitles students to admission to convocations and special film events, to issues of Tech Talk, the student newspaper, and to membership in student organizations. It does not, however, include admission to varsity sports events nor to copies of The Citadel, the College yearbook. In no case should a student be charged more than the full-time student activity fee of \$38 per academic year.

For Certificate of Residence requirement, see page 19.



## **ADMISSION**

A high school diploma or equivalent is required for entrance to all curriculums. All applicants must take the Scholastic Aptitude Test of the College Entrance Examination Board, and must meet the minimum requirements of physical ability required by the occupational field in which they wish to engage. They must also be recommended by their high school principal or guidance counselor.

### **Application Procedure**

New students are admitted only at the beginning of the school year in the fall. However, applications will be accepted at any time.

An application for admission must be made on official forms supplied on request by the Admissions Office.

A deposit of \$10 must accompany each application. The deposit is non-refundable but is applied as an advance payment on the student activity fee if the application is accepted. Once a student is accepted, he will be billed for an advance payment of \$50 on tuition. This is also non-refundable.

The Committee on Admissions may require an applicant to participate in an admissions counseling interview. Counseling interviews are not required of all applicants, but they may be requested by the applicant.

**NOTE**—Applicants who do not satisfactorily meet the entrance requirements may apply to enter the General Studies Certificate program. This preparatory year program provides opportunity for the student to strengthen his academic background so that he may enter any full-time program of the College with a better expectation of successful accomplishment.

### **Readmission or Transfer**

Applications for readmission or transfer to the College must be submitted to the Admissions Office prior to three weeks before the start of the term in which the applicant is requesting readmission. Applications received later than the above period may be returned to the applicant by the Director of Admissions without processing.



## Entrance Requirements

In planning for college, it is advisable that each high school student enroll in a college preparatory curriculum. The following table should help in planning a high school program.

<b>Curriculum</b>	<b>Recommended High School Subjects</b>	<b>Other Desirable High School Subjects</b>
Business: Accounting Business Admin. Marketing Secretarial	*2 units Mathematics 2 units Science	College preparatory courses
Chemical Technology	Chemistry *3 units Mathematics including Trigonometry	Physics, Additional Mathematics, Technical courses
Civil Technology	Physics *3 units Mathematics including Trigonometry	Additional Mathematics, Technical courses
Dental Hygiene	*2 units Mathematics Biology, Chemistry	Social Studies, Typewriting
Electrical Technology	Physics *3 units Mathematics including Trigonometry	Additional Mathematics, Technical courses
Engineering Science	Chemistry, Physics *3½ units Mathematics incl. Advanced Algebra	Additional Mathematics, Science and Technical courses
Environmental Health Technology	*2 units Mathematics 2 units of Laboratory Science	Additional Mathematics and Science
Liberal Arts and Sciences	*2½ units Mathematics 4 units in any combination of science, language, or additional Mathematics	College preparatory courses
Mechanical Technology	Physics *3 units Mathematics including Trigonometry	Additional Mathematics, Technical courses
Medical Laboratory Technology	*2 units Mathematics 2 units of Laboratory Science	Typing, Additional Mathematics and Science
Medical Office Assistant	*2 units Mathematics 2 units Science	Typing, Additional Mathematics and Science
Nursing	*2 units Mathematics, Biology, Chemistry	College Preparatory courses
X-ray Technology	*2 units Mathematics 2 units of Laboratory Science	Typing, Additional Mathematics and Science

\* Academic units of mathematics such as algebra, geometry or trigonometry.

# ACADEMIC STANDARDS AND REGULATIONS

## Requirements for Graduation

Common requirements for all three degrees granted by the College:

1. Quarter point average must total 8.60 for a six-quarter program or the equivalent
2. Recommendation of the faculty for the awarding of the degree
3. Satisfaction of all obligations to the College

### **THE ASSOCIATE IN APPLIED SCIENCE DEGREE**

This degree is given to graduates of these curriculums:

Accounting	Environmental Health Technology
Chemical Technology	Marketing Management
Civil Technology	Mechanical Technology
Dental Hygiene	Medical Laboratory Technology
Electrical Technology	Medical Office Assistant
Engineering Secretarial	Nursing
Executive Secretarial	X-Ray Technology

4. Degree requirements: a minimum of 96 quarter credits
5. Curriculum requirements:
  - a) A minimum of 60 credits in a student's major field. These are courses intrinsic to and required by the various curriculums.
  - b) A minimum of 30 credits in general education or liberal arts courses.
    - 1) Social Sciences: a minimum of 9 credits
    - 2) Biological and Physical Sciences (including Mathematics) : a minimum of 9 credits
    - 3) Humanities: a minimum of 9 credits in English (composition and/or speech)
    - 4) Electives (or additional courses) in the foregoing fields comprising a minimum of 30 credits in the liberal arts and sciences or general educational areas
  - c) Satisfactory completion of all courses in a curriculum or as approved in a department
6. Satisfactory completion of required co-operative work periods for Electrical and Mechanical Technology students and Summer Hospital Radiographic Technique program for X-Ray Technology students

### **THE ASSOCIATE IN SCIENCE DEGREE**

This degree is awarded to graduates of the Business Administration and Engineering Science curriculums.

4. Degree requirements: a minimum of 96 quarter credits
5. Curriculum requirements:

At least 45 credits in the humanities, natural sciences, mathematics, the social sciences



## **THE ASSOCIATE IN ARTS DEGREE**

This degree is awarded to graduates in the Liberal Arts and Sciences curriculum.

4. Degree requirements: a minimum of 93 quarters credits  
(in addition to physical education)
5. Curriculum requirements: a minimum of 72 credits distributed as follows:
  - a) Social Sciences: a minimum of 18 credits
  - b) Biological Sciences and Physical Sciences: a minimum of 12 credits
  - c) Mathematics: a minimum of 9 credits  
(this requirement may be satisfied if candidate has completed 3½ units of secondary mathematics through Advanced Algebra or the equivalent)
  - d) Humanities: a minimum of 27 credits, of which 18 shall be in English (composition, speech, and literature) and 9 of which shall be in other subjects in the humanities
  - e) Electives: 80% shall be in the fields of study listed above
  - f) Physical Education: a minimum of 6 credits. Exception to this requirement may be made by the Dean of the College
  - g) Satisfactory completion of all courses in a curriculum or as approved in a department

### **Grades**

Grade	Honor Points Per Credit Hour	Explanation
A	4	Outstanding achievement in meeting the objectives of the course
B	3	Above average achievement
C	2	Average achievement
D	1	Below average achievement
P	0	Poor achievement—no honor points
F	0	Failure to meet the objectives of the course
W	0	Withdrawal from course within first four weeks of term.
I	0	Incomplete. Work to be made up within one week or by special arrangement with the department
S	0	Satisfactory. (Final grade for a non-credit course or a mid-term grade in a credit course to denote a student's progress.)

### **Residence Requirements**

Students transferring from other colleges will, as a general rule, be expected to complete a minimum of one year's work at Broome Tech, immediately prior to being granted the Associate Degree.

### **Honors**

At the end of each term, students who have earned an average of 3.5 or better are named to the President's List. Those with averages between 3.0 and 3.49 are placed on the Honor Roll.

## **Scholastic Standing**

To remain in satisfactory standing, a student must earn a point average of 1.2 the first term, 1.4 the second, 1.5 the third term, and 1.5 for each succeeding term until graduation.

Any student who does not maintain this minimum point average in any term is placed on probation for the following "on campus" term.

In order for a student to remain in good standing, he must also demonstrate mature attitude, interest and cooperation.

Grades are issued at the end of each term. Students will also be notified of their academic standing at the approximate mid-point of each term. Satisfactory progress will be denoted by an "S" letter grade. Progress below average (below C) will be denoted by an appropriate letter grade.

A student who wishes to repeat courses already taken at Broome Tech should secure permission from his department chairman or advisor and should ask that the College policy on repeating courses be explained.

## **Late Registration**

An applicant may not register later than one week after the beginning of the fall term except by permission of the Dean of the College.

## **Attendance Regulations**

Every student is expected to attend all sessions of classes and laboratory work for which he is registered, and all absences and tardinesses will be recorded.

Excuses for absences will be granted in accordance with instructions outlined in the Student Handbook. Unexcused absences from classes may be considered valid reason for dismissal or other disciplinary action.

## **Withdrawal from the College**

A student compelled to withdraw at any time must immediately notify the Student Personnel Office and complete the proper termination form. Failure to comply with this regulation will cause the individual to forfeit his right to honorable dismissal and to lose any refund of fees.

A student who withdraws from the College will receive a W grade in each course, with these exceptions:

If his withdrawal is in the first two weeks, he may receive no grade at the discretion of the director of records. If he has been in class more than four weeks, his grade may be an F if the department chairman so requests. And if he has completed the course, his grade will be that reported by the instructor.

## **Withdrawal from Courses**

Permission to withdraw from courses must be secured from the student's department chairman or his faculty advisor.

A student permitted to withdraw from a course during the first two weeks of the term will have no indication of such registration on his permanent official college record.

If a student is permitted to withdraw during the third or fourth week he will have W's entered on his permanent record.

If a student is permitted to withdraw from a course beyond the fourth week, he will receive an F grade.

If, for reasons of health or circumstances beyond his control, the student is counseled by his department chairman and the Dean of the College to drop a course, he will receive a W.



## Advanced Standing Students

Transfer of credit from students who have been enrolled in other accredited colleges is subject to the approval of the chairman of the student's major department and the director of records. Students who have attended one or more other colleges must in all cases submit an official transcript of work taken to the College Admissions Office before formal acceptance will be granted.

## Credit by Examination

Advanced Placement Examinations and College Proficiency Exams:

Applicants who have completed any of the Advanced Placement Examinations sponsored by the College Entrance Examination Board or the College Proficiency Examinations sponsored by the University of the State of New York may apply for credit and advanced placement. Such requests will be handled like transfer credit and will be granted where applicable, subject to the approval of the department chairman and director of records.



# GENERAL INFORMATION

## EXPENSES

### Tuition

- For New York State residents ----- \$360 per year  
(Payable at the rate of \$120 per term)
- For out-of-state residents ----- \$720 per year  
(Payable at the rate of \$240 per term)

Tuition for all students is payable at the beginning of each of the first three quarters of the school year, regardless of cooperative work assignment.

The responsibility for payment of tuition rests upon the student. At the beginning of each school year, the College advises parents of the initial required payment, but this is usually not done in subsequent quarters. Students will be suspended from classes if the established due dates for payment are not met.

### Fees

Tuition and fees are payable at the Finance Office. All students will be required to pay their tuition and fees for the first quarter by September 15. Any refund is at the option of the College.

The following fees will be charged, with the College reserving the right to change any of them:

#### STUDENT ACTIVITY ----- \$38 per year

The \$10 deposit required with the application becomes advance payment on the activity fee, if the applicant is accepted. The activity fee entitles students to admission to varsity games, dances and parties, as well as a subscription to the student newspaper (Tech Talk) and the opportunity to participate in a varied program of co-curricular activities, including intramural athletics.

#### HEALTH ----- \$23 per year

This fee covers the cost of the student health insurance program. If a student is covered under his family's health insurance, however, a statement to this effect will be accepted instead of the health fee, if the statement is signed by a parent or by the student, if he or she is of age. This statement should cite the name of the insurance program under which the student is covered, and it should be turned in to the Finance Office.

#### GRADUATION ----- \$20

This fee is paid at the start of the term preceding graduation.

#### LABORATORY

Refundable ----- \$10 each year for each course in Chemistry and Physics to cover breakage. If breakage is less than \$10 worth, then appropriate amount is refunded.

Non-refundable ----- \$ 5 per term for each Chemistry laboratory course for use of materials.

### Living Accommodations

The College does not maintain dormitories. Local students, of course, live at home. Out-of-town students are required to live in rooms which have been inspected and approved by the College. Lists of approved rooms are maintained by the Student Personnel Office, and students are assisted in finding suitable living quarters.



## **Books and Supplies**

Each student provides at his own expense the necessary books and instructional materials. These may be purchased at the Book Store maintained by the Faculty-Student Association for the convenience of the students. The cost varies, depending on the curriculum, from about \$45 to \$125 per year.

In addition, uniforms and dental instruments for Dental Hygiene students will cost approximately \$100.

## **Board and Room**

The cost of board and room for out-of-town students is dependent upon the demands of the student. The average cost varies from \$25 to \$35 per week.

## **Length of Curriculum**

All associate degree programs are two years in length. The college year is divided into four terms of approximately eleven weeks each. Students enrolled in the cooperative work curriculums—Electrical Technology and Mechanical Technology—spend a total of six terms on campus and two terms in industry, X-ray Technology students must take courses during two summers on campus and at local hospitals. Students in the other curriculums spend three terms on campus each year.

## **Cooperative Work Program**

In the Cooperative Work Program, students are placed in jobs related to their major field of study for two employment periods. Students are paid the prevailing wages for the jobs they do. Cooperative students in the Electrical and Mechanical Technology curriculums earn about \$800 to \$1200 during each cooperative period.

The program offers other distinct advantages:

1. It is exploratory. The student has a chance to survey and evaluate a number of different jobs within his field. At the same time he can take stock of his own abilities and interests.
2. It is an opportunity to correlate classroom studies with actual work experience.
3. It is a means of demonstrating the importance of human relations in the work situation.

Cooperative work students are expected to “earn their own way,” to perform the duties required without special favor. At the end of the period, employers submit a report covering the students’ performances.

## **Dismissal**

Students may be considered for dismissal for the following causes: More than one consecutive probationary period, more than one failing grade in a term, failure to earn a point average of 1.0 in any term, irregular attendance, neglect of work or financial obligations, failure to comply with College rules and regulations or official notices, conduct unbecoming a student.

Any action leading to the requested withdrawal of a student is taken up by the Executive Committee. Any student may petition his department staff to waive the academic requirements of the College leading to dismissal; such petitions are acted upon by the Executive Committee upon their presentation by the department concerned. The College reserves the right to be the sole judge in all matters pertaining to dismissal.

Students who are dismissed from the College will not be permitted to re-enroll in the day school term subsequent to the dismissal action.

## **Transfer to Senior Institutions**

Students desiring to transfer are encouraged to consult with their faculty advisor, department chairman or a representative from the Student Personnel Office for assistance in selecting colleges that are appropriate in terms of their goals and demonstrated college achievement.

Broome Technical Community College will not as a general rule encourage students who have less than a C (2.0) average to transfer to other colleges.

An applicant for transfer who will not complete the requirements for the Associate Degree at Broome Technical Community College prior to the time of anticipated transfer may not be recommended for transfer, if the faculty of the college feel the applicant has not completed a desirable breadth or depth of study to provide suitable criteria for measuring academic ability.

The following procedures are to be followed by students desiring transfer:

1. Initiate an application to transfer by applying directly to the college. Applications should be submitted during December and January of the second year. Applications submitted after these dates involve the risk of being deferred or returned due to lack of space at the four-year college.
2. Fill out Section I (in duplicate) of the Transfer Record Form in the Student Personnel Office. Students in Liberal Arts and Sciences, Engineering Science and the Business Administration curriculums will be requested to complete the Transfer Record Form regardless of their intention to transfer immediately upon graduation from Broome Tech.
3. Complete a Request For Transfer of Academic Record Form in the Student Personnel Office for each college to which they are applying.
4. Forward request for references or recommendation forms from other colleges to the Student Personnel Office.

Please review these procedures carefully. Omission of any step would result in a delay of your records being forwarded to another college. If you have any questions regarding the above procedure, consult with the Student Personnel Office.

## **FACULTY-STUDENT ASSOCIATION**

The Faculty-Student Association of Broome Technical Community College, Inc., is an educational corporation designed to provide to the College, and particularly to the students and faculty, services that are not provided for in the regular College budget.

It provides the corporate organization through which the student fees are expended under a budget prepared by the Student Council and such other organizations as the Athletic Board of Control and the Convocation Committee. It also operates the College Bookstore and the cafeteria.

Through the modest earnings of the bookstore the income from student fees is augmented to support new or special activities and to obtain needed equipment.

The association is governed by a board of directors elected by members who are certain student and faculty members, identified by the offices they hold on campus.

The operating philosophy is to make the educational program outside of the classroom a well-rounded supplement to the academic experience of the student.



## Certificate of Residence

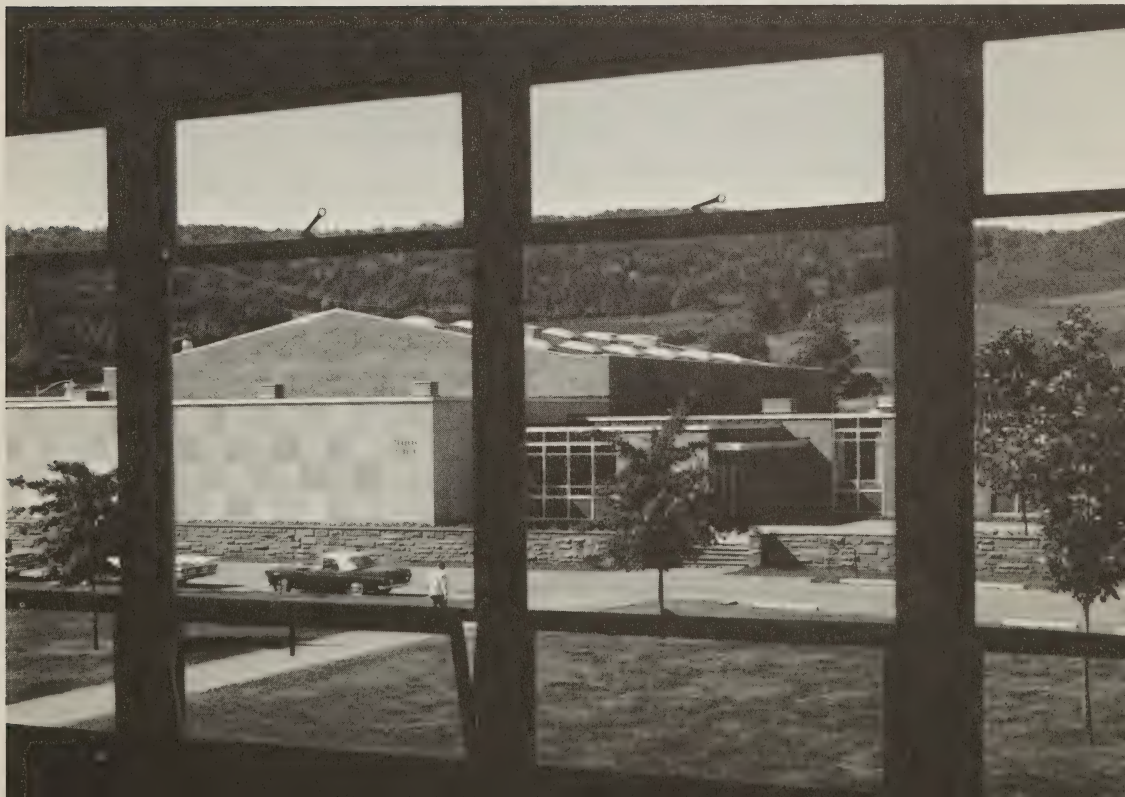
To qualify for the resident tuition fee, a student is required by law to present once each academic year on or before registration a certificate of residence indicating that he has been a legal resident of the State of New York for one year and of the county in which he resides for six months.

**Broome County Residents**—Full-time students admitted to the College will be mailed a copy of the application for certificate of residence prior to registration. This application must be completed and presented at time of registration.

**Out-of-County Residents**—Full-time students admitted to the College will be mailed a copy of the application for certificate of residence prior to registration. The application must be completed, notarized, and presented to the **County Treasurer of the county in which the student resides**. The County Treasurer will then issue a certificate of residence to the student. This certificate of residence must be presented at the time of registration.

Part-time students must meet the same requirements as stated above. The application for certificate of residence form is available at the Finance Office and the Office of the Director of the Extension Division.

The completed residence forms are required once each academic year.



## **FINANCIAL AID**

More and more financial aid is becoming available for young people seeking a college education, with the result that fewer men and women are being denied the advantages of higher education because of the costs.

Financial aid at Broome Technical Community College falls into three broad categories—awards, loans and part-time work. The awards are scholarships and grants that do not have to be repaid; the loans must be paid back but the repayment plans are lenient and the interest rates low; part-time work is arranged through the College and coordinated with the student's academic schedule.

The College is affiliated with the College Scholarship Service (CSS) of the College Entrance Examination Board. Participants in CSS subscribe to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists colleges and universities and other agencies in determining the student's need for financial assistance.

Entering students seeking scholarship assistance are required to submit a copy of the Parents' Confidential Statement (PCS) form by April 15 to the College Scholarship Service, designating Broome Technical Community College as one of the recipients. For National Defense Student Loan candidates, August 15 is the deadline date. The PCS form may be obtained from a secondary school or the College Scholarship Service, P.O. Box 176, Princeton, New Jersey 08540.

### **The Broome Technical Community College Foundation**

The College has established this Foundation to help students overcome economic barriers to higher education. It has established a Scholarship Fund by enlisting the cooperation of industries, organizations and individuals in the community. Their contributions are administered by the Foundation to assist needy and qualified students. About 75 scholarships and grants of at least \$300 are made possible each year by the Foundation.

The Foundation also collects and distributes funds to aid in the improvement and growth of faculty capabilities, thus enabling faculty members of the College to take graduate work and to attend seminars, workshops and conferences in their field.

Contributors to this faculty development phase of the Foundation include the American Cyanimid Co. for \$500, the Binghamton Civic Club for \$400, as well as a local anonymous donor who gave \$1,000.

## **AWARDS**

### **Scholar Incentive Awards**

Most students attending Broome Technical Community College who are New York State residents are eligible for a Scholar Incentive Award. This award is a direct grant payable to the student each term, and it amounts to \$100 or \$160 for the academic year, depending upon the net taxable income of the student's family.

It is the individual student's responsibility to obtain and complete the necessary application forms. These may be obtained from the University of the State of New York, The State Education Department, Regents Examination and Scholarship Center, Albany, New York 12224. For fall benefits, applications should be filed before July 1, but will be accepted up to December 1. The deadline date for winter and spring applications is April 1. Students must apply once a year.

Students who are eligible for these awards must pay full tuition upon registering. Their award checks will be remitted to the student by the Finance Office when received from the state.

Details are available in the Financial Aids Office.



## New York State Regents Scholarships

Recipients of New York State Regents Scholarships may use them at the College, although the Regents Scholarship for Engineering and Scientific Studies is applicable only to the Engineering Science Program.

## Federal Government Grants

**Educational Opportunity Grants** are available to exceptionally needy students under the provisions of the Higher Education Act of 1965. These grants range between \$200 and \$800 for the academic year, depending upon need, and they are normally in effect for four years of undergraduate education. Applicants must submit a Parents Confidential Statement prior to April 15.

**Service veterans** with at least six months of active duty since January 31, 1955 are eligible to receive at least \$100 a month for full-time study from the Federal government, under the new Veterans Readjustment Benefits Act of 1966. Recipients of this financial aid are not eligible for Regents Scholarships.

More information is available in the Financial Aids Office.

## Scholarships

About 75 scholarships and grants-in-aid of about \$300 each have been established to recognize outstanding scholarship and/or financial need of applicants to Broome Technical Community College. These awards are made primarily to entering freshmen students to help defray most or all of the first year's expenses. Students may apply for these grants at the time of making application for entrance to the college.

Contributors to the scholarship fund of the Broome Technical Community College Foundation include:

Administrative Management Society,  
Triple Cities Chapter  
American Society for Quality Control  
The Azon Corporation  
Binghamton Container Company, Inc.  
The Binghamton Savings Bank  
Broome Tech Alumni Association  
Broome Tech Women's Club  
Chernin & Gold, Attorneys  
Clark-Cleveland, Inc.  
Collegiate Administrative Management Society Chapter  
Conrad & Virginia Klee Foundation, Inc.  
Crowley's Milk Company  
David E. Meade Scholarship Awarded  
by Kiwanis Club of Binghamton

Endicott Forging & Manufacturing Co.  
First-City National Bank  
General Aniline & Film Corporation  
International Business Machines Corporation  
Link Group of General Precision, Inc.  
Marine Midland Trust Company  
New York State Electric & Gas Corp.  
Mr. and Mrs. Richard Parish  
Mr. and Mrs. Charles Pierson  
Public Loan Company, Inc.  
Scintilla Division, Bendix Aviation Corporation  
Stow Manufacturing Company  
E. H. Titchener & Company  
Universal Instruments Corporation

## Endowment Fund Scholarships

Individuals and industrial and professional organizations have donated and/or will money to the Broome Technical Community College Scholarship Endowment Fund. This money is invested to produce interest or dividends that are used to establish scholarships. Ten scholarships of \$200 each from this source are:

**Neva M. Ash Memorial Scholarship.** Miss Ash served with distinction in many capacities on the faculty from the first days of the College in 1947 until her death in 1963.

**Bernard H. Chernin Scholarship.** These two scholarships are given in recognition of the outstanding contributions these two men have made to the College as members of its Board of Trustees, of which both are now emeritus members.

**Donald W. Emmons Memorial Scholarship.** Mr. Emmons, a highly respected member of the faculty, served the College from 1947 until his death in 1964.

**Ann Tyrrell Heybey Memorial Scholarship.** Mrs. Heybey is the late daughter of Broome Tech President and Mrs. Tyrrell. Before her marriage she worked in the Broome Tech Library during two summers, and this scholarship was established through the many generous donations of thoughtful friends of the family on the occasion of her untimely death in August, 1966.

**Dr. James T. Ivory Memorial Scholarship.** Dr. Ivory was one of the original members of the Board of Trustees and the only one still serving at the time of his death in April 1964. He had been a tireless worker on behalf of the College, and the Dental Hygiene Clinic was renamed in his honor shortly after his death.

**Mrs. Charles F. (Jeanette) Johnson Memorial Scholarship.** Mrs. Johnson and her husband were both devoted supporters of education and of local institutions. Her support of Broome Tech began in the early days of the College's Student Aid Association and continued until her death.

**S. David Molyneaux Memorial Scholarship.** Dr. Molyneaux was a highly respected member of the faculty from 1959 until his death in 1963. Moreover, he served the community's cultural and scientific needs with an unusual dedication that won him many friends and much respect.

**Paul F. Titchener Memorial Scholarships (2).** Mr. Titchener was chairman of the College's Board of Trustees from the day it first met in 1947 until he resigned in 1957. He was instrumental in having the state establish a two-year college in Binghamton in 1947, and he continued to serve as a trustee until his death in 1963.

## Special Scholarships

Following are contributors to specially designated scholarships:

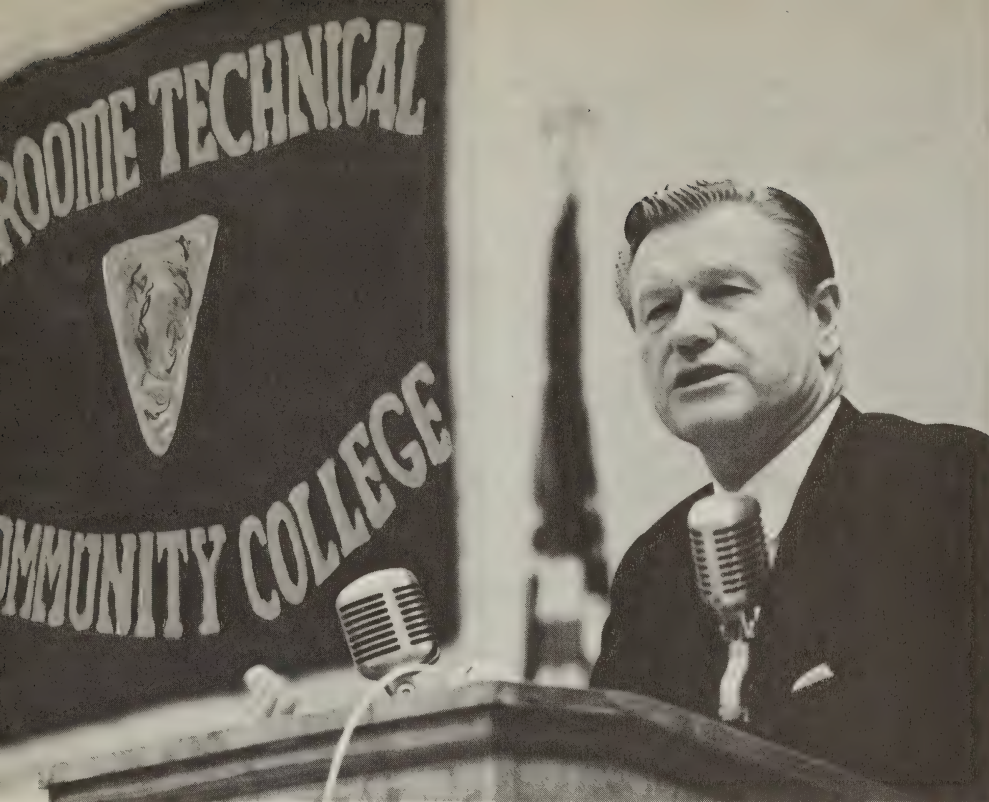
**Athletic Board of Control Awards.** Scholarship help to out-of-town applicants who can meet all entrance requirements and have financial need and outstanding ability as a basketball player.

**Alumni Athletic Awards.** The Broome Tech Alumni Association grants scholarship help to out-of-town applicants who can meet all entrance requirements and who in addition have financial need and have shown outstanding ability as a basketball player.

**Binghamton Chapter, National Secretaries Association Scholarship.** Established in 1954. One scholarship of \$200 to be awarded to a young lady graduate of one of the Broome County high schools entering a secretarial option of the Business curriculum. Recipient to be judged on the basis of scholastic ability, character, personality and financial need.

**Binghamton Truck Sales Award.** A \$300 award to a student who meets all entrance requirements and has financial need and outstanding ability as a basketball player.





**Broome County Association of Highway Officials.** An annual award of \$300, with \$200 to be given the first year and \$100 for the second year. Awarded to a graduate of a Broome County high school, and the recipient must be a resident of Broome County.

**Broome County Dental Society Scholarship.** One scholarship of \$100 and a plaque awarded at capping service to a Dental Hygiene student who showed outstanding ability and campus leadership during her freshman year.

**Broome County Medical Society Scholarship.** An annual award of \$200 to that student completing the first year in the Medical Office Assistant program who has been selected by the faculty on the basis of aptitude, initiative and scholarship.

**Civic Club of Binghamton Award.** Established in 1953. Awards of \$250 are given to two young women, graduating from one of the Binghamton high schools and wishing to enter the college.

**Endicott Rotary Club Scholarship.** An annual award of \$300 granted to a graduate of Seton Catholic High School or Union-Endicott High School in the city of Endicott.

**Fairbanks Company Scholarship.** Two \$400 awards are made annually, one to a son and one to a daughter of a Fairbanks Company employee. Three additional \$400 awards are made, one each to a graduate of Binghamton North High School, Binghamton Central High School and Catholic Central High School in Binghamton. The Scholarship Committee of the College will select the recipients, and \$200 of each award will be distributed each year to them. The eligible applicants must file an application form before May 1 and prior to admission to the College. Withdrawal from the College will terminate the award.

- Hillcrest-Port Dick Kiwanis Club Scholarship.** A \$200 scholarship to be awarded to a high school graduate residing in the Chenango Valley School district. The Foundation Scholarship Committee will select the recipient on the basis of scholastic ability and financial need.
- Johnson City Lions Club Scholarship.** Annual award of \$200 awarded to a graduate of Johnson City High School.
- Ellis and Gladys Klepfer Scholarship.** A \$300 award to an applicant who can meet all entrance requirements, and who in addition has financial need and has shown outstanding ability as a basketball player.
- Burton Koffman Foundation Award.** A \$250 award to a student who meets all entrance requirements and has financial need and outstanding ability as a basketball player.
- Norwich-Eaton Foundation Scholarships.** Four \$300 scholarships (to two seniors in Chemical Technology and to two seniors in Medical Laboratory Technology). The scholarships are distributed \$100 each term for the three terms of the senior year. The recipients are selected by the scholarship committee primarily on the basis of financial need, with consideration of academic achievement.
- Cy Pearis Award.** A \$300 award to an applicant who can meet all entrance requirements, and who in addition has financial need and has shown outstanding ability as a basketball player.
- Lou Rappaport Freshman Scholarship.** One scholarship of \$200 to be given to a worthy student graduating from Chenango Valley Central School.
- Walter C. (Bud) Rose Scholarship.** An award of \$600 to a Civil Technology student preferably a graduate of Chenango Valley Central School. The scholarship committee will select the recipient on the basis of scholastic ability, character, personality and financial need.
- Sales & Marketing Executives of the Southern Tier Award.** This is an award of \$200 to be given to a freshman at the end of his first year at Broome Tech who elects the Business-Marketing Option in his senior year. The recipient is to be chosen on the basis of need, character and scholastic ability. If the committee feels that two students meet this criteria, the award may be divided.
- Irving Schwab Memorial Scholarship.** A \$300 award to an applicant who can meet all entrance requirements, and who in addition has financial need and has shown outstanding ability as a basketball player.
- Soroptimist Club Scholarship.** An annual scholarship of \$200 is given to a student entering the Dental Hygiene program. The selection of the candidate is based upon financial need, quality of scholarship in high school, and aptitude as a dental hygienist.
- Triple Cities Business and Professional Women's Club Award.** Established in 1954. An award of \$600 is given to one or two young women. The recipient is selected from the graduates of one of the following schools:
- Binghamton Central High School
  - Binghamton North High School
  - Binghamton Catholic Central High School
  - Chenango Valley Central School
  - Johnson City High School
  - Susquehanna Valley Central School
- Triple Cities Coin Club of New York State.** A \$100 award to assist a student who graduated from a Broome County high school.
- Ken Wilson Chevrolet Award.** A \$300 award to a student who meets all entrance requirements and has financial need and outstanding ability as a basketball player.



**Women's Auxiliary of the Broome County Dental Society.** A fund established for a deserving student in the Dental Hygiene curriculum who might need assistance to complete studies at the College.

## **LOANS**

Students enrolled at the College are eligible to borrow from either the New York Higher Education Assistance Corporation or from funds made available under the National Defense Loan program. The interest rates are a low 3% to the student in either instance, the maximum amount that can be borrowed is \$1,000, and repayment doesn't have to begin until after graduation from either Broome Tech or any other college to which a student transfers. Repayment under the state program must start 60 days after one's college education is completed, while the Federal loans permit one nine months to begin repaying.

More information is available in the Financial Aids Office.

## **WORK OPPORTUNITIES**

### **College Work-Study Program**

The College Work-Study Program is available to all students who demonstrate financial need as defined by the Federal Government. Special emphasis is directed to students from low income families.

Work assignments vary within the College and include work in maintenance, laboratories and offices. The prevailing student wage for campus jobs is paid. During the normal school year work assignments are limited to 15 hours per week and during the summer 40 hours per week.

Applications for the College Work-Study Program may be obtained from the Financial Aids Office.

### **Cooperative Work Program**

Students in the Electrical and Mechanical Technology curricula spend two terms in jobs related to their field of study. These are off-campus positions in industry. The College places the students in these jobs, and they are paid the prevailing wages for the work they do. Students earn about \$800 to \$1200 during each cooperative work period.

For more information on the Cooperative Work Program, see page 17.

### **Part-Time Jobs**

Part-time work is also available at times throughout the academic year, aside from the College Work-Study Program. These jobs are both on and off-campus. Students desiring work should consult the Financial Aids Office.

## **JOB PLACEMENT**

Many companies send representatives to the campus each spring to interview seniors about jobs immediately after graduation. This practice has grown to the point where 70 concerns conducted job interviews in 1967.

Leading national corporations were among those interested in Broome Tech graduates, as well as many local companies. The list included such major area employers as International Business Machines, New York State Electric & Gas Corp., Link, General Aniline and Film and practically all the banks in Broome County.

Such firms as Eastman Kodak, Xerox, DuPont, Argonne Laboratories, American Can Co., Dow Chemical and Corning Glass represented the national scene.

The job interviews are especially directed toward students in the occupationally-oriented Business program and the Electrical, Mechanical, Civil and Chemical Technology curricula.

In cooperation with the department chairmen, the Student Personnel Office coordinates permanent placement, including employment listings and appointments for interviews.

## **ALUMNI**

Graduates who are working in the area are urged to take advanced courses offered in the Evening Extension Division.

### **Transcripts**

Each graduate is entitled to two transcripts of his work completed at the College. One dollar is charged for each additional transcript.

### **Alumni Association**

All graduates of the College now automatically become paid-up lifetime members of the Broome Tech Alumni Association, which is legally a division of the Faculty-Student Association so that it too is organized on a non-profit corporate basis.

The association has its own officers, board of directors and paid executive secretary, and its primary purpose is to provide a link between the College and its graduates. A bi-monthly printed Alumni Newsletter helps to accomplish this objective by providing alumni with news of the college as well as information about other graduates.

The Alumni Association actively supports the College's scholarship program and conducts programs for its members throughout the year, such as the annual Alumni Dinner-Dance.

## **CONVOCATIONS**

Speakers in a diversity of fields are brought to the campus during the school year as part of the College's convocation program. These convocations are considered a phase of the academic curriculum, although they are scheduled apart from the regular classroom program.

Such nationally known figures as James Farmer, former director of CORE; syndicated advice columnist Ann Landers; Pulitzer-prize winning reporter Haynes Johnson; and Jim Fowler of the TV "Wild Kingdom" show have appeared at convocations.

Other noted speakers who have been here for convocations include television writer Rod Serling, former Congressman Walter Judd, Norman Thomas, James Meredith, and author Vance Packard.



## **CO-CURRICULAR ACTIVITIES**

The College recognizes the fact that student experiences outside the classroom are important in one's over-all development. For this reason the College supports an active co-curricular program as a complement to classroom studies. The variety of activities on the campus reflects the diversification of student interests and provides the opportunity for students to develop talents, leadership ability and a sense of social responsibility.

Co-curricular activities are guided by two faculty-student committees—the Student Activity Committee for the College's non-athletic program and the Athletic Board of Control for sports.

The Student Activity Committee consists of four faculty members and the president of the Student Council. It approves, recommends and supervises the policy of all student activities, except athletics.

The Athletic Board of Control is composed of three faculty members, the director of athletics and one student. It develops and recommends policy for inter-collegiate and intramural athletic programs.

### **Student Council**

The Student Council, the governing body in student affairs, is the heart of the co-curricular activity program. The officers, elected from the student body, and the representatives from the various curriculums promote and coordinate the student activities. The Social Committee is one of the most important Student Council committees, as it is responsible for the extensive social program of the Council.

### **Music**

The Student Council sponsors four performing vocal groups—the College Choir and the Madrigal Singers, which are open to both men and women students, the Tech Tone Masters which is a male glee club, and a women's glee club.

The College musical organizations also have in the past sung at the New York World's Fair, and joined with the Civic Theater of Binghamton for the cooperative production of Broadway musicals. In addition, an oratorio chorus of faculty, students and members of the community has performed the Handel oratorio, "The Messiah."

### **Honor Societies**

#### **PHI THETA KAPPA**

In 1962 the Mu Eta chapter of Phi Theta Kappa was established at the College. Phi Theta Kappa is a national honor society at junior colleges, similar in purpose to Phi Beta Kappa at the four-year colleges and universities. Mu Eta chapter is open to freshmen and seniors who have achieved outstanding academic grades, been especially active in co-curricular participation, demonstrated outstanding qualities of leadership and responsibility, and made noteworthy contributions to the College.

#### **SIGMA PHI ALPHA**

The national Dental Hygiene honor society, Sigma Phi Alpha, has a chapter at Broome Tech, the Upsilon chapter. Those senior dental hygiene students who rank highest in scholarship and character and who exhibit potential qualities for future growth and attainment are selected for membership.

## **Publications**

*Tech Talk* is the campus newspaper and the *Citadel* is the College yearbook. *Tech Talk* is published semi-monthly and the *Citadel* is, of course, published just once a year. Positions on both publications are open to all students.

*Tech Talk's* purpose is to report news of the campus, student body and faculty. It also provides a place for students to express their ideas about campus activities and about events related to college life.

The *Citadel* provides a record, mostly pictorial, of the school year, and as such the objectives of its staff are to be historical as well as interesting.

## **Professional Society Affiliates**

Since exposure to organizations in their fields of study is considered of benefit to students, many curriculums have their own affiliates of national professional societies. Among these are:

ASTME, the American Society of Tool and Manufacturing Engineers, for Mechanical Technology students.

A collegiate chapter of the Administrative Management Society, mainly for Business students although all students are welcome.

Dental Hygiene Association, an affiliate of the American Dental Hygiene Association.

Broome Tech Chapter Future Secretaries Association, affiliated with the National Secretaries Association (International) Binghamton Chapter.

IEEE, the Institute of Electrical and Electronics Engineers, for Electrical Technology students.

In addition, some meetings of local professional societies are attended by students, as the American Chemical Society invites Chemical Technology students to its meetings. Some professional societies hold meetings on campus, too, and students are always welcome to attend. Thus students have the opportunity to become acquainted with professional people in their fields of study and to attend lectures, and see films and demonstrations of new developments.

## **Other Clubs**

In addition to the co-curricular activities already listed, other organizations are active on campus, such as the Camera Club, Circle K, Newman Club, Broome Tech Players, Political Discussion Group, Liberal Arts Club, Civil Technology Association. All are open to all students in good standing. Details on the purposes and requirements for membership in all clubs are available in the Student Handbook.

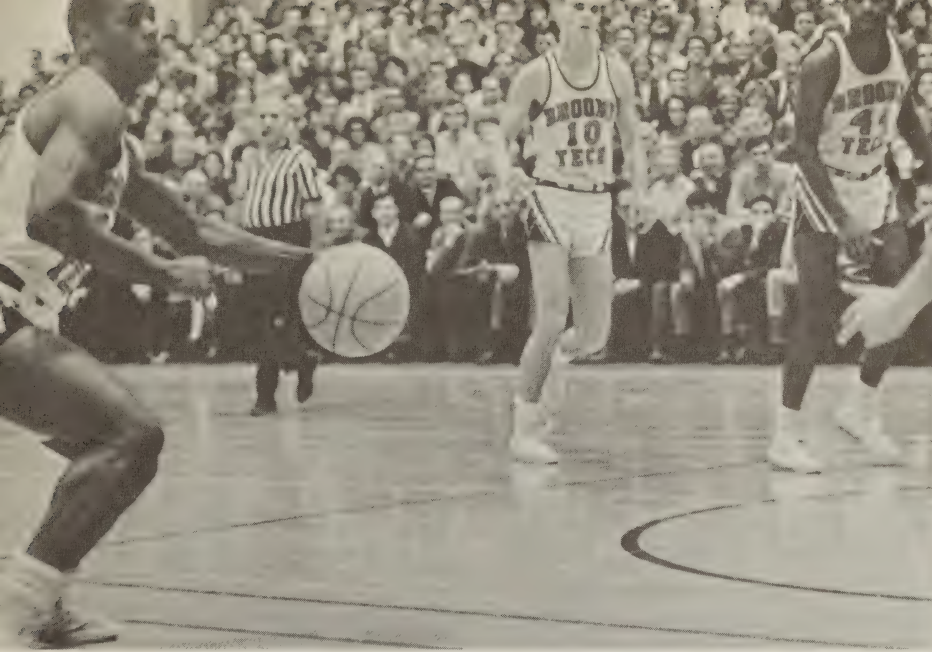
# **ATHLETICS**

## **Varsity Sports**

Broome Tech fields varsity teams in seven sports—basketball, soccer, baseball, cross-country, golf, tennis and wrestling—and has acquired an excellent reputation for team play and sportsmanship.

The basketball team has captured the regional junior college championship seven of the last ten years and has won 426 games and lost 123. The baseball team has won two recent regional tournaments, and the cross-country, golf, tennis and soccer squads have also been regional powers in the past.





## **Intramural Sports**

All students may participate in intramural sports. Men's teams representing the various curriculums compete for the coveted President's Trophy, awarded annually to the one acquiring the most points in a variety of activities. League competition is conducted in flag football, basketball, volleyball, soccer and softball, while students also compete in individual sports such as golf, badminton, archery, tennis, cross-country and bowling.

Archery, skiing and co-educational bowling clubs offer additional opportunity for participation in recreational activities, although they do not count in President's Trophy competition.

## **Women's Sports**

The College also has a varied sports program for women students. In addition to the Physical Education classes, there are intramural competition and All-Sports Days.

Intramurals are contested in volleyball, badminton, tennis, archery, basketball, softball, bowling and Hurricane 9 (a modified form of touch football for girls). A Dean's Trophy is awarded to the winning team, similar to the President's Trophy for the men's intramurals champion.

The All-Sports Days consist of competition in varied sports against women's teams from other colleges, both at home and away.

## **Cheerleaders**

A squad of cheerleaders performs at home basketball and soccer games. Positions are open to both men and women students whether they are freshmen or seniors, and tryouts will be held shortly after the start of the school year in September.

In addition, the College has a Hornet mascot costume, which will be worn by a student during games.

# HONOR AWARDS

**American Chemical Society (Binghamton Section) Award** of \$50 to the outstanding senior in chemistry.

**International Material Management Society (Southern Tier Chapter) Award** of \$75 to a Mechanical Technology senior who has demonstrated an interest in material handling, mechanical engineering or industrial engineering and who plans to make a career of one of these fields.

**American Society for Testing and Materials (Binghamton Chapter) Award** of a one-year membership in the society to a Mechanical or Civil Technology senior who has shown superior scholastic ability and an interest in testing or in materials.

**American Society of Tool and Manufacturing Engineers (ASTME) Award** of the Tool Engineers Handbook to a senior in the student ASTME Chapter who has contributed outstanding service.

**Broome County Chamber of Commerce Award** of an engraved certificate to two seniors (a man and a woman) for leadership in co-curricular activities and for satisfactory academic achievement.

**Broome County Medical Society Award** of a \$200 scholarship to a freshman student in the Medical Office Assistant program who is a Broome County resident and is selected by the faculty for aptitude, initiative and scholarship.

**Collegiate Administrative Management Society Chapter Award** of five inscribed pewter bowls to the outstanding student, academically, in each of the five options of the Business Division—accounting, marketing, business administration, engineering secretarial and executive secretarial.

**Colonial TV Award** of a \$25 gift certificate to an Electrical Technology senior who has shown outstanding ability in laboratory work.

**U. S. Greene Mathematics Award** of \$50 to a senior for showing a high degree of ability and progress in mathematics.

**Institute of Electrical and Electronics Engineers (IEEE) Awards:**

- 1—An IEEE certificate from the national IEEE office to an Electrical Technology senior who has contributed most to the student IEEE chapter.
- 2—\$50 from the Binghamton Section of IEEE to the Electrical Technology senior who has shown leadership and outstanding ability in the IEEE organization. The student must be in the top quarter of his graduating class.

**Ladies Auxiliary of the Broome County Area Chapter of the New York State Society of Professional Engineers Award** of a \$100 scholarship to an Engineering Science senior who has shown a high degree of engineering ability. Financial need is a factor in selecting this recipient.

**Sales and Marketing Executive Club of the Southern Tier Award** of a \$200 scholarship for one person or \$100 each to two freshman students in the marketing program on the basis of need, academic performance and an essay.

**Stevenson Medal**, given by the New York State Dental Society, to the Dental Hygiene student who possesses in the highest degree the qualities considered necessary for success in this work. Theory, technique and personality are the three principal considerations.

**Upsilon Chapter of Sigma Phi Alpha (National Dental Hygiene Honor Society) Award** of membership in the chapter. Limited to the top 10 percent of the Dental Hygiene graduates who rank highest in scholarship and character and who exhibit potential qualities for future growth and attainment.

**Triple Cities Radiologic Technologist Society Award** of the two-volume text "Atlas of Roentgenographic Positions."



## **THE LIBRARY**

A new library building, scheduled for completion in 1967, will have a capacity for 900 readers and 75,000 volumes.

Since 1947 the library has developed the most complete collection of technical works in the Southern Tier, consisting of about 23,000 books, pamphlets and government documents. Additions are currently emphasizing such areas as liberal arts, business and health sciences to reflect the College's broadened scope of curriculum offerings.

Extensive files of periodicals and journals, recordings and prints of well-known paintings are also included in the library's holdings.

Part of the library's purpose is to stimulate intellectual curiosity, to promote independent research, and to provide leisure-time reading facilities for students and faculty.

The library is open evenings during the college year and therefore is also available for evening division students.

## **NUCLEAR PHYSICS LABORATORY**

One of the most modern facilities at Broome Tech is the Nuclear Physics Laboratory, which is an example of the College's constant effort to provide the most up to date education available. The laboratory is used to introduce seniors in the Engineering Science curriculum to the nuclear physics field, and Chemical Technology seniors use it in their advanced quantitative analysis course. They learn the most modern methods being employed in industry and science, as there are now many industrial uses for radioactive materials. Some courses in the College's X-ray and Medical Laboratory Technology curriculums are given in the laboratory.

A \$12,000 grant from the Atomic Energy Commission in 1963 provided the funds to equip the laboratory.

## **STUDENT CENTER**

The busiest and most versatile building on the Broome Tech campus is the Student Center. It houses the gymnasium, the College Cafeteria, Bookstore, Student Lounge, Faculty Dining Room, the Little Theater and the College nurse's office. This building is used by day and evening students of all curriculums.

## **AUDIO-VISUAL AIDS**

Students and faculty have many audio, visual and audio-visual aids at their disposal through the Audio-Visual Department. These can be used for classroom or co-curricular purposes, and they include films and film strips, a preview room, an art workshop, tape recorders, transparent and opaque overhead projectors, as well as slide projectors.

The department makes signs and posters, handles the ordering, distributing and locating of films for faculty members, and provides the materials and assistance in the art workshop.

The College's photo department and duplicating center are also part of the Audio-Visual Department.

# **CURRICULUMS** **of the** **COLLEGE**





# **BUSINESS**

The Business Division offers courses of study in five different areas. These are engineering secretarial and executive secretarial, accounting, marketing, and business administration. The first four are designed to prepare graduates for immediate employment, while the business administration option is for students planning to continue their education at a four-year college or university.

Administratively, two departments cover these five options. Accounting, marketing management, and business administration are in the administrative management department; the engineering secretarial and executive secretarial programs comprise the secretarial sciences department.

These programs were planned with the assistance of businessmen, accountants, administrative managers, comptrollers, auditors, sales managers, engineers and secretaries.

Employment in business and industry, as well as management training programs offered by banks, chain stores and insurance companies, provide some of the best opportunities for a graduate of the accounting and marketing management options. The business administration program also offers some employment opportunities to those students who decide to work instead of continuing their college education after graduation.

## **OCCUPATIONAL PROGRAMS**

### **Engineering Secretary**

Graduates of this option can obtain immediate employment as stenographer-secretaries, technical secretaries or as private secretaries. They are in demand when industry or government needs secretarial help that can understand the specialized language of engineering. Since these students study science and engineering terminology in addition to their business skills, they are well prepared to work on engineering reports, records and correspondence.

### **Executive Secretary**

These graduates are expected to find opportunities as secretarial assistants in the professions, as well as in government and with business firms. Students in this option may elect courses from other fields of study in the College consistent with their interests and vocational goals.

### **Accounting**

Students taking this option receive their training in such basic areas as cost accounting, internal auditing, machine accounting and tax accounting. Graduates have successfully taken positions in banks, industrial firms, public accounting and private business.

### **Marketing Management**

Students taking this option should have an interest and personality suited to a career as a salesman. Employment opportunities are generally found in sales of services, equipment, insurance, and products at the wholesale level. This program is not designed to prepare one for retail selling.

## **TRANSFER PROGRAM**

### **Business Administration**

This option is designed specifically to prepare graduates to continue their business studies at a four-year college or university. While offering maximum transfer potential toward a bachelor's degree in accounting or business administration, it still gives students preparation for employment if they decide to work instead of seeking their baccalaureate degrees.

# ADMINISTRATIVE MANAGEMENT DEPARTMENT

## Business Administration • Accounting • Marketing

These 3 options have the same first year of study.

		1st YEAR			Hours Per Week		
Term 1			Class	Lab	Credits		
BU 101	Accounting -----	2	2	3			
BU 145	Business Law -----	3	0	3			
BU 160	*Typewriting or LA 805 American Literature	0-3	5-0	2-3			
LA 255	Economics -----	3	0	3			
LA 801	English -----	3	0	3			
MA 101	**Mathematics or LA 840 Philosophy -----	3	0	3			
		14-17	7-2	17-18			
Term 2							
BU 102	Accounting -----	2	2	3			
BU 141	Business Mathematics -----	3	0	3			
BU 146	Business Law -----	3	0	3			
BU 151	Business English -----	3	0	3			
LA 256	Economics -----	3	0	3			
LA 802	English -----	3	0	3			
		17	2	18			
Term 3							
BU 103	Accounting -----	2	2	3			
BU 121	Finance -----	3	0	3			
BU 142	Business Statistics -----	3	0	3			
LA 257	Economics -----	3	0	3			
LA 803	English -----	3	0	3			
PH 113	Physical Science -----	3	2	4			
		17	4	19			

\*If a student has satisfactorily completed a Regents unit of Typewriting of 65% or equivalent, LA 805 American Literature must be substituted.

\*\*Students who satisfactorily completed Intermediate Algebra and Trigonometry or Mathematics 11 in secondary school will take LA 840 Philosophy instead of Mathematics.

## Business Administration Option

		2nd YEAR					
Term 4							
BU 204	Intermediate Accounting -----	2	2	3			
BU 207	Cost Acctg. or LA 236 Lit. of Western World	2-3	2-0	3-3			
LA 145	Development of Western Civilization -----	3	0	3			
MA 110	Fundamentals of Mathematics -----	3	0	3			
PH 114	Physical Science -----	3	2	4			
		13-14	6-4	16-16			
Term 5							
BU 205	Intermediate Accounting -----	2	2	3			
BU 208	Cost Acctg. or LA 237 Lit. of Western World	2-3	2-0	3-3			
LA 146	Development of Western Civilization -----	3	0	3			
MA 111	Fundamentals of Mathematics -----	3	0	3			
PH 115	Physical Science -----	3	2	4			
		13-14	6-4	16-16			
Term 6							
BU 206	Intermediate Accounting -----	2	2	3			
BU 210	Cost Acctg. or LA 238 Lit. of Western World	2-3	2-0	3-3			
LA 147	Development of Western Civilization -----	3	0	3			
LA 804	Effective Speaking -----	3	0	3			
MA 112	Fundamentals of Mathematics -----	3	0	3			
		13-14	4-2	15-15			



# Accounting Option

## 2nd YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 4</b>				
BU 207	Cost Accounting -----	2	2	3
BU 220	Payroll Accounting -----	2	2	3
BU 230	Data Processing -----	2	2	3
BU 253	Personnel Administration -----	3	0	3
BU 272	Office Machines or BU 221 Computer Programming -----	1-2	4-2	3-3
LA 804	Effective Speaking -----	3	0	3
		13-14	10-8	18-18
<b>Term 5</b>				
BU 208	Cost Accounting -----	2	2	3
BU 221	Computer Programming or BU 272 Office Machines -----	2-1	2-4	3-3
BU 222	Federal Tax -----	2	2	3
BU 231	Data Processing -----	2	2	3
BU 249	Office Management -----	3	0	3
LA 810	Psychology -----	3	0	3
		14-13	8-10	18-18
<b>Term 6</b>				
BU 210	Cost Accounting -----	2	2	3
BU 223	Internal Auditing -----	2	2	3
BU 232	Data Processing -----	2	2	3
BU 250	Office Management -----	3	0	3
BU 254	Industrial Organization & Management ---	3	0	3
LA 830	Sociology -----	3	0	3
		15	6	18

# Marketing Management Option

## 2nd YEAR

<b>Term 4</b>				
BU 209	Distribution Cost -----	2	2	3
BU 253	Personnel Administration -----	3	0	3
BU 290	Salesmanship -----	3	0	3
BU 292	Marketing -----	3	0	3
BU 296	Credit -----	3	0	3
LA 810	Psychology -----	3	0	3
		17	2	18
<b>Term 5</b>				
BU 230	Data Processing -----	2	2	3
BU 249	Office Management -----	3	0	3
BU 291	Sales Management -----	3	0	3
BU 293	Advertising -----	3	0	3
LA 804	Effective Speaking -----	3	0	3
LA 830	Sociology -----	3	0	3
		17	2	18
<b>Term 6</b>				
BU 221	Computer Programming -----	2	2	3
BU 250	Office Management -----	3	0	3
BU 272	Office Machines -----	1	4	3
BU 294	Advertising -----	3	0	3
BU 295	Market Research -----	3	0	3
BU 297	Marketing Management -----	3	0	3
		15	6	18

## Executive Secretary

These 2 options have the same first year of study.

## 1st YEAR

**Hours Per Week**

Term 1			Class	Lab	Credits
BU 101	Accounting -----		2	2	3
BU 141	Business Mathematics -----		3	0	3
BU 161	*Typewriting or LA 850 Political Science ---		0-3	5-0	2-3
BU 164	***Shorthand or LA 860 Language of Music _		2-3	3-0	3
LA 801	English -----		3	0	3
MA 101	**Mathematics or LA 805 Amer. Literature _		3	0	3
			13-17	10-2	17-18
Term 2					
BU 102	Accounting -----		2	2	3
BU 162	Typewriting -----		0	5	2
BU 165	Shorthand -----		2	3	3
BU 167	Transcription -----		2	3	3
LA 802	English -----		3	0	3
PH 106	Physics -----		2	2	3
			11	15	17
Term 3					
BU 104	Accounting -----		2	2	3
BU 163	Typewriting -----		2	3	3
BU 166	Shorthand -----		2	3	3
LA 803	English -----		3	0	3
LA 804	Effective Speaking (Executive Secretary)		3	0	3
or				or	
PH 107	Physics (Engineering Secretary) -----		2	2	3
LA 810	Psychology -----		3	0	3
			15-14	8-10	18

\*If a student has satisfactorily completed a Regents unit of Typewriting of 80% or equivalent, LA 850 Political Science must be substituted.

**\*\*Students who have satisfactorily completed Intermediate Algebra or Mathematics 11 in secondary school will take LA 805 American Literature instead of Mathematics.**

\*\*\*If student has passed a Regents unit of Shorthand of 80% or equivalent, LA 860 Language of Music must be substituted for Shorthand in first term.



## Engineering Secretary Option

### 2nd YEAR

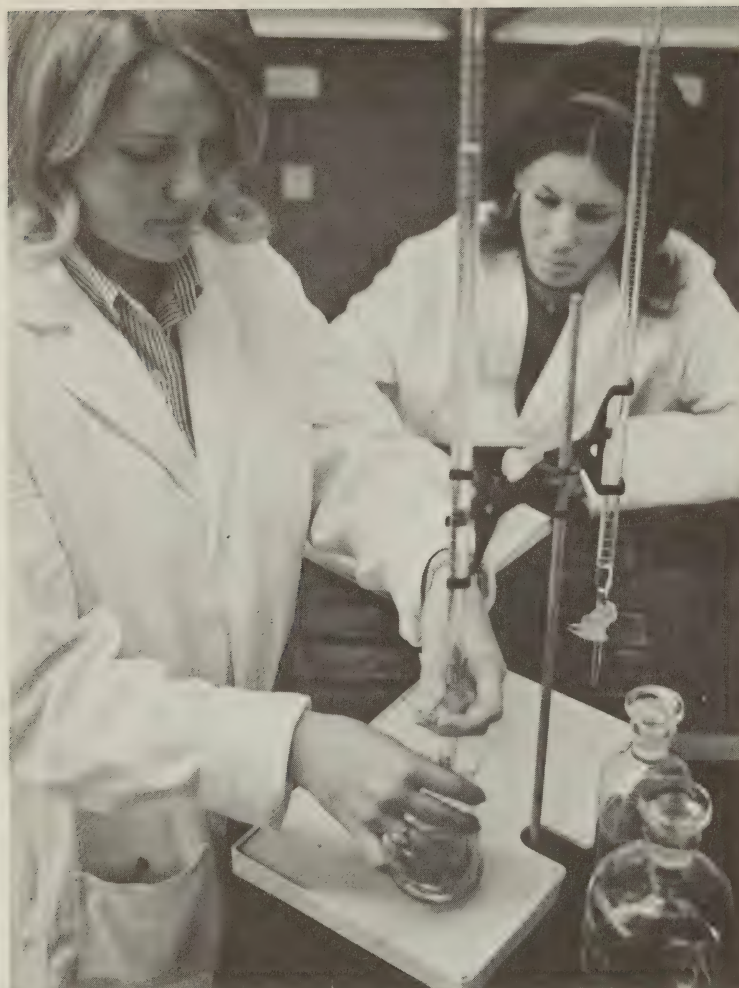
		Hours Per Week		
		Class	Lab	Credits
<b>Term 4</b>				
BU 151	Business English -----	3	0	3
BU 230	Data Processing -----	2	2	3
BU 253	Personnel Administration -----	3	0	3
BU 260	Engineering Shorthand -----	2	3	3
CH 180	Chemistry -----	3	2	4
MT 101	Engineering Drawing -----	0	3	1
		13	10	17
<b>Term 5</b>				
BU 145	Business Law -----	3	0	3
BU 261	Engineering Shorthand -----	2	3	3
BU 263	Technical Typewriting -----	2	3	3
BU 274	Office Practice -----	2	4	4
MT 129	Shop -----	1	3	2
LA 804	Effective Speaking -----	3	0	3
		13	13	18
<b>Term 6</b>				
BU 146	Business Law -----	3	0	3
BU 254	Industrial Organization & Management ---	3	0	3
BU 275	Office Practice -----	2	4	4
BU 280	Speed Shorthand -----	2	3	3
LA 820	Economics -----	3	0	3
LA 830	Sociology -----	3	0	3
		16	7	19

## Executive Secretary Option

### 2nd YEAR

<b>Term 4</b>				
BU 151	Business English -----	3	0	3
BU 253	Personnel Administration -----	3	0	3
BU 270	Executive Shorthand -----	2	3	3
LA 193	*Philosophy -----	3	0	3
LA 236	Literature of the Western World -----	3	0	3
LA 255	Economics -----	3	0	3
		17	3	18
<b>Term 5</b>				
BU 145	Business Law -----	3	0	3
BU 271	Executive Shorthand -----	2	3	3
BU 274	Office Practice -----	2	4	4
LA 194	*Philosophy -----	3	0	3
LA 237	Literature of the Western World -----	3	0	3
LA 256	Economics -----	3	0	3
		16	7	19
<b>Term 6</b>				
BU 146	Business Law -----	3	0	3
BU 275	Office Practice -----	2	4	4
BU 280	Speed Shorthand -----	2	3	3
LA 195	*Philosophy -----	3	0	3
LA 238	Literature of the Western World -----	3	0	3
LA 257	Economics -----	3	0	3
		16	7	19

\*If schedule can be arranged, a year of language may be substituted for the year of Philosophy.



## CHEMICAL TECHNOLOGY

The Chemical Technology program is designed to prepare both men and women for industrial positions in chemistry, chemical engineering and allied occupations. Industrial positions are in the areas of research, development, analytical chemistry, pilot plant, production supervision, technical writing and sales.

Graduates are employed by both private industry and government agencies throughout the nation, and each year the demand for graduates continues to exceed the supply.

This program's primary emphasis is toward the occupational opportunities in this field. But some students each year have successfully transferred to the third year of a four-year college or university.

This is an ECPD accredited Engineering Technology curriculum. ECPD is the Engineers Council for Professional Development.

# Chemical Technology

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
CH 110	Chemistry -----	3	3	4
LA 801	English -----	3	0	3
MA 140	College Algebra and Trigonometry -----	4	0	4
PH 140	Physics -----	3	2	4
MT 102	Engineering Drawing -----	0	6	2
		13	11	17
<b>Term 2</b>				
CH 111	Chemistry -----	3	3	4
LA 802	English -----	3	0	3
LA 830	Sociology -----	3	0	3
MA 141	Analytic Geometry and Calculus -----	3	0	3
PH 141	Physics -----	3	2	4
		15	5	17
<b>Term 3</b>				
CH 113	Chemistry -----	3	0	3
CH 131	Chemistry (Qualitative) -----	3	4	5
LA 803	English -----	3	0	3
MA 142	Analytic Geometry and Calculus -----	3	0	3
PH 142	Physics -----	3	2	4
		15	6	18

## 2nd YEAR

<b>Term 4</b>				
CH 241	Quantitative Chemistry -----	4	9	7
CH 251	Organic Chemistry -----	3	6	5
CH 261	Chemical Engineering Stoichiometry -----	3	0	3
		or		
BI 101	***Biology -----	3	3	4
	*Elective -----	3	0	3
		13	15-18	18-19
<b>Term 5</b>				
CH 242	Quantitative Chemistry -----	3	6	5
CH 252	Organic Chemistry -----	3	6	5
CH 262	Chemical Engineering Unit Operations -----	3	3	4
		or		
BI 102	***Biology -----	3	3	4
LA 810	Psychology -----	3	0	3
MA 241	**Mathematics -----	0-3	0	0-3
		12-15	15	17-20
<b>Term 6</b>				
CH 243	Instrumental Methods of Analysis -----	3	6	5
CH 253	Organic Chemistry -----	3	6	5
CH 263	Chemical Engineering Unit Operations -----	3	6	5
		or		
BI 103	***Biology -----	3	3	4
LA 820	Economics -----	3	0	3
		12	18-15	18-17

\* Required

AD 120 Computer Programming or  
 Liberal Arts Elective or  
 MA 240 Mathematics (with department chairman's approval)

\*\*Optional; department chairman's permission is necessary

\*\*\*A limited number of students may take BI 101, 102, 103 Biology in place of CH 261, 262, 263





## **CIVIL TECHNOLOGY**

The construction industry, considering all related goods and services such as manufacturing and transportation, is the largest industry in the country. The unparalleled activity in construction has pointed up a severe shortage of technical personnel in this field.

This shortage has been made more acute by activation of new multibillion dollar state and federal programs in highway and clean water conservation, by the erection of new educational and industrial facilities, and by the continued activity in home building. Civil Technology has been designed to help alleviate this shortage.

Graduates of this program are engineering technicians and are qualified to work as assistants to professional and supervisory persons such as engineers, architects, construction superintendents, surveyors and contractors.

Many openings exist in the federal, state and local governments. Other fields which attract graduates are sales of building materials and construction equipment, purchasing, testing of construction materials, drafting, estimating, specification writing, and inspection.

This is an ECPD accredited Engineering Technology curriculum. ECPD is the Engineers Council for Professional Development.

# Civil Technology

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
LA 801	English -----	3	0	3
MA 140	College Algebra & Trigonometry -----	4	0	4
PH 140	Physics -----	3	2	4
CH 104	Chemistry -----	3	2	4
MT 130	Manufacturing Processes -----	2	2	3
MT 110	Engineering Drawing -----	0	3	1
MT 151	Orientation -----	1	0	0
		16	9	19
<b>Term 2</b>				
CT 119	Plain Concrete -----	2	3	3
LA 802	English -----	3	0	3
MA 141	Analytic Geometry & Calculus -----	3	0	3
PH 141	Physics -----	3	2	4
MT 155	Applied Mechanics -----	3	0	3
BU 158	Construction Law -----	3	0	3
		17	5	19
<b>Term 3</b>				
CT 110	Architectural Drawing -----	0	3	1
CT 140	Surveying -----	3	6	5
CT 153	Strength of Materials -----	3	3	4
LA 803	English -----	3	0	3
MA 142	Analytic Geometry & Calculus -----	3	0	3
ET 135	Electricity (DC) -----	3	2	4
		15	14	20

## 2nd YEAR

<b>Term 4</b>				
CT 141	Surveying -----	2	6	4
CT 211	Architectural Drawing -----	0	3	1
CT 254	Strength of Materials -----	3	0	3
LA 830	Sociology -----	3	0	3
	*Elective -----	0-3	0	0-3
ET 136	Electricity (AC) -----	3	2	4
		11-14	11	15-18
<b>Term 5</b>				
CT 212	Architectural Drawing -----	0	3	1
CT 220	Reinforced Concrete Design -----	3	3	4
CT 271	Environmental Sanitation -----	3	3	4
CT 283	Route Surveying & Highway Design -----	3	3	4
LA 810	Psychology -----	3	0	3
	**Elective -----	0-3	0	0-3
		12-15	12	16-19
<b>Term 6</b>				
CT 221	Structural Steel Design -----	3	3	4
CT 230	Building Design -----	3	3	4
CT 250	Estimating & Construction Planning -----	3	3	4
CT 270	Soil Mechanics -----	3	3	4
LA 820	Economics -----	3	0	3
		15	12	19

\*(Optional)

AD 120 Computer Programming or  
MA 240 Analytic Geometry and  
Calculus

\*\*(Optional)

CT 131 Heating, Ventilating &  
Air-Conditioning or  
MA 241 Analytic Geometry and Calculus

## DENTAL HYGIENE

Dental hygienists are in great demand in this highly respected profession. Their services are performed in private dental practices, school systems, hospitals, industry and institutional dental clinics. Also in research programs, schools of dental hygiene, public health agencies, the Peace Corps and on the ship S.S. Hope. Regardless of the type of employment, one of the most important activities is that of constantly being a dental health educator.

Students learn to perform clinical, educational and assisting duties in a department that has the most modern equipment. The dental hygienist, who always works under the supervision of a dentist, is the only member of the auxiliary group in the dental profession who is licensed to perform services directly in the mouth of a patient; therefore, good manual dexterity is necessary. Sincere interest in working with people, good health, pleasing personality and good moral character are also important qualifications.

Dental hygiene duties, in compliance with respective state laws, include (a) the removal of deposits and stains on the teeth, (b) the application of fluoride solutions to the teeth, (c) individual and group dental health instruction, (d) exposing, processing and mounting of dental X-ray films, and (e) assisting the dentist at the dental chair and in the laboratory.

All dental hygienists must take a licensing examination (written and practical) in the state in which they wish to practice.

Graduates of Broome Tech's Dental Hygiene curriculum are eligible for a provisional dental hygiene teacher's certificate in New York State. They may also continue to study for a Bachelor of Science Degree in Health Education, for which a formal arrangement has been made with the State University College at Cortland, New York. Credits are also acceptable for transfer to other degree-granting colleges in the country.

The Dental Hygiene Department is equipped to handle limited numbers of students, so that applications should be submitted to the college at the beginning of the senior year of high school. It is also recommended that applicants take the Dental Hygiene Aptitude Test.

The curriculum is fully accredited by the Council on Dental Education of the American Dental Association.





# Dental Hygiene

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
DH 100	Dental Hygiene and Ethics -----	2	0	2
DH 140	Dental Anatomy -----	2	2	3
BI 171	Anatomy and Physiology -----	3	2	4
BU 160	*Typewriting -----	0	5	2
CH 101	Chemistry -----	3	3	4
LA 801	English -----	3	0	3
PE 109	First Aid -----	1	0	1
		14	12	19

<b>Term 2</b>				
DH 101	Dental Manikin Practice -----	1	4	3
DH 141	Dental Anatomy -----	2	2	3
BI 172	Anatomy and Physiology -----	3	2	4
BI 175	Histology and Embryology -----	2	2	3
CH 102	Chemistry -----	3	3	4
LA 802	English -----	3	0	3
		14	13	20

<b>Term 3</b>				
DH 102	Dental Manikin Practice -----	1	4	3
DH 121	Hygiene -----	2	0	2
DH 153	Radiology -----	3	0	3
DH 158	Dental Office Practice -----	2	2	3
BI 159	Microbiology -----	3	4	5
LA 803	English -----	3	0	3
		14	10	19

Term 4		2nd YEAR			
DH 204	Clinical Dental Hygiene -----	0	12	4	
DH 244	Preventive Dentistry -----	3	0	3	
DH 254	General Pathology -----	2	0	2	
DH 283	Dental Health Education -----	2	2	3	
BI 285	Pharmacology -----	3	0	3	
LA 810	Psychology -----	3	0	3	
		13	14	18	

<b>Term 5</b>				
DH 205	Clinical Dental Hygiene -----	0	12	4
DH 255	Oral Pathology -----	2	0	2
DH 260	Dental Lab Practice -----	2	2	3
DH 261	Nutrition -----	3	0	3
DH 267	Anesthesia -----	2	0	2
DH 285	Health Services in Schools -----	3	0	3
BI 287	Public Health -----	2	0	2
		14	14	19

<b>Term 6</b>				
DH 206	Clinical Dental Hygiene -----	0	12	4
DH 264	School Organization -----	3	0	3
DH 268	Special Dental Practice -----	3	0	3
LA 804	Effective Speaking -----	3	0	3
LA 820	Economics -----	3	0	3
LA 830	Sociology -----	3	0	3
		15	12	19

\*If a student has satisfactorily completed a course in Typewriting in the secondary school, a Liberal Arts course may be substituted.

# ELECTRICAL TECHNOLOGY

Few people are unaware of what an important part electricity plays in our daily lives, in conveniences like radio, television, lighting and innumerable kitchen appliances.

But electricity is also one of the cornerstones upon which space exploration and our national defense are built. The amazing development of radar, electronics and solid state hardware is based on electricity.

The recent rapid advances in electronics and related electrical fields have created a tremendous need for engineers, engineering technicians and specialists to meet the needs of national defense and the scientific economy and life of the future.

Two-year technical colleges, like Broome Tech, have become increasingly important in preparing better trained men for work in the electrical field. These colleges train men and women to do highly specialized technical work in half the time of a four-year college. Although few realize it, there is an excellent place for women in the electrical field.

Job opportunities are in such areas as electrical design drafting, technical sales, electronic computers, sonar and guided missiles. Graduates can also find employment in power generation and distribution, communications and the design and evaluation of electrical equipment.

Some of the companies that have hired Broome Tech Electrical Technology graduates in recent years are General Electric, Westinghouse, IBM, Bell Telephone, the Argonne Laboratories of the University of Chicago and New York State Electric and Gas Corp.

This is an ECPD accredited Engineering Technology curriculum. ECPD is the Engineers Council for Professional Development.



# Electrical Technology

## 1st YEAR

		Hours Per Week		
Term 1		Class	Lab	Credits
ET 101	Manufacturing Processes -----	1	3	2
ET 104	Industrial Safety and First Aid -----	2	0	2
ET 110	Physics (Fundamentals for Electricity) --	4	3	5
ET 130	Engineering Drawing -----	0	3	1
LA 801	English -----	3	0	3
MA 140	College Algebra and Trigonometry -----	4	0	4
		14	9	17
Term 2				
ET 102	Electrical Construction and Maintenance --	1	3	2
ET 111	Physics (Electricity and Magnetism) ----	4	3	5
ET 112	Semiconductor Fundamentals -----	4	0	4
ET 131	Engineering Drawing -----	0	3	1
LA 802	English -----	3	0	3
MA 141	Analytic Geometry and Calculus -----	3	0	3
		15	9	18
Term 3				
ET 103	Electrical Construction and Maintenance --	0	3	1
ET 120	Electrical Circuits -----	4	3	5
ET 250	Electronics -----	4	3	5
LA 803	English -----	3	0	3
MA 142	Analytic Geometry and Calculus -----	3	0	3
AD 120	Fundamentals of Computer Programming --	2	2	3
		16	11	20

## 2nd YEAR

Term 4				
ET 223	Network Analysis -----	4	0	4
ET 230	Electrical Design -----	0	3	1
ET 240	Electrical Machines -----	4	3	5
ET 251	Electronics -----	4	3	5
LA 830	Sociology -----	3	0	3
	*Elective -----	3	0	3
		18	9	21
Term 5				
ET 231	Electrical Design -----	0	3	1
ET 241	Electrical Machines -----	4	3	5
ET 252	Electronics -----	4	3	5
ET 261	Organization and Management -----	3	0	3
LA 810	Psychology -----	3	0	3
	**Elective -----	3	0	3
		17	9	20
Term 6				
ET 232	Electrical Design -----	0	3	1
ET 242	Automatic Controls -----	4	3	5
ET 253	Electronics -----	4	3	5
ET 262	Industrial Relations -----	3	0	3
LA 820	Economics -----	3	0	3
		14	9	17

\*Required

MA 240 Analytic Geometry and  
Calculus or

ET 263 Engineering Economics

**2 Quarters of Co-operative Work  
Required for Graduation**

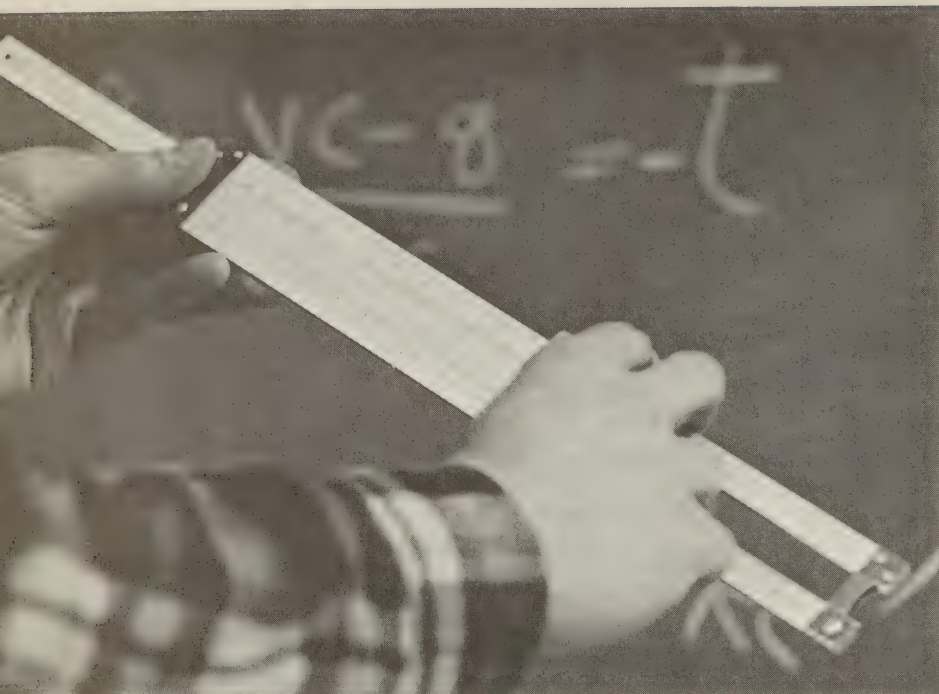
\*\*Required

MA 241 Analytic Geometry and Calculus  
or

ET 263 Engineering Economics or

ET 257 Introduction to System Logic





## ENGINEERING SCIENCE

The level of work covered in the Engineering Science curriculum is primarily designed to prepare graduates to continue their studies in the engineering field in four-year colleges and universities. But there are also employment opportunities for qualified graduates.

The emphasis in this program is on mathematics and physics, so that graduates can transfer to four-year schools into the junior year in such fields as physics, engineering and mathematics.

Students have recently transferred to engineering schools at such colleges and universities as Rensselaer Polytechnic Institute, Syracuse, Clarkson, New York University and State University at Buffalo.

Some of the job opportunities for those who prefer to seek immediate employment lie in the engineering technician field in such areas as assistants to engineers in research and development, and positions involving the application of mathematics.

In order for a high school graduate to qualify for admission to the Engineering Science curriculum, he or she must have shown high academic potential on the admission tests, and demonstrated superior ability in science and mathematics in high school.

Students entering Broome Tech who wish to continue studying for their bachelors' degrees in engineering, mathematics or physics will find this the most appropriate course of study.

# Engineering Science

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
CH 110	Chemistry -----	3	3	4
LA 130	English Composition -----	3	0	3
MA 170	Analytic Geometry and Calculus -----	4	0	4
MT 103	Engineering Drawing -----	0	6	2
PH 170	Physics (Mechanics) -----	3	3	4
		13	12	17
<b>Term 2</b>				
CH 111	Chemistry -----	3	3	4
LA 131	English Composition -----	3	0	3
MA 171	Analytic Geometry and Calculus -----	4	0	4
MT 112	Descriptive Geometry -----	1	2	2
PH 171	Physics (Mechanics and Heat) -----	3	3	4
		14	8	17
<b>Term 3</b>				
CH 112	Chemistry -----	3	3	4
LA 132	English Composition -----	3	0	3
MA 172	Analytic Geometry and Calculus -----	4	0	4
PH 172	Physics (Electricity and Magnetism) -----	3	3	4
AD 111	Computer Programming and Numerical Analysis -----	2	2	3
		15	8	18

## 2nd YEAR

<b>Term 4</b>				
LA 255	Economics -----	3	0	3
MA 270	Analytic Geometry and Calculus -----	3	0	3
MT 165	Metallurgy -----	3	3	4
PH 270	Physics (Light and Sound) -----	3	3	4
PH 192	Statics -----	4	0	4
		16	6	18
<b>Term 5</b>				
LA 256	Economics -----	3	0	3
MA 271	Differential Equations -----	3	0	3
PH 290	Dynamics -----	4	0	4
PH 271	Physics (Atomic) -----	3	3	4
PH 210	Electrical Circuits -----	3	3	4
		16	6	18
<b>Term 6</b>				
LA 257	Economics	}	0-3	3-4
	or -----			
PH 280	Astronomy -----			
MA 272	Differential Equations -----	3	0	3
PH 211	Electrical Circuits -----	3	3	4
MT 254	Strength of Materials -----	3	3	4
PH 272	Physics (Nuclear) -----	3	3	4
		15	9-12	18-19

## ENVIRONMENTAL HEALTH TECHNOLOGY

Statistics indicate that in 1964 four percent of the total population was employed in health related professions. Projected statistics also indicate that by 1975 an additional 8,000,000 people will have to be trained to work in these areas.

Graduates of this curriculum will be in demand by communities, food distributors, public health departments and private industries. The graduate will be involved in the surveillance and control of water and air pollution, food contaminants, ionizing radiation, nursing care facilities, public housing and industrial situations.

The environmental health technician will be a member of a professional team devoted to improving our living conditions. The program is designed to provide the students with a broad background of environmental and sanitary sciences with emphasis on the practical application of the subjects. In addition, the program deals with the ethical and legal responsibility of the public health personnel and the current status of areas and national pollution control programs.

The student will receive training in the classroom, the laboratory, and also on inspection tours of food, dairy and meat processing plants, as well as hospitals, nursing homes and other public and private facilities.





# Environmental Health Technology

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
EH 101	Environmental Health I -----	2	0	2
LA 801	English -----	3	0	3
MA 101	*Mathematics or LA 850 Political Science --	3	0	3
CH 101	Chemistry -----	3	3	4
BI 131	Zoology -----	3	3	4
MT 101	Engineering Drawing -----	0	3	1
		14	9	17
<b>Term 2</b>				
EH 102	Environmental Health II -----	2	3	3
LA 802	English -----	3	0	3
MA 102	Mathematics -----	3	0	3
CH 122	Chemistry -----	3	3	4
PH 106	Physics -----	2	2	3
		13	8	16
<b>Term 3</b>				
EH 103	Milk Sanitation -----	3	3	4
LA 803	English -----	3	0	3
CH 123	Chemistry -----	3	3	4
BI 106	Limnology -----	2	6	4
PH 107	Physics -----	2	2	3
		13	14	18

## 2nd YEAR

<b>Term 4</b>				
EH 201	Atmospheric Pollution -----	3	6	5
EH 204	Water Supply and Pollution Control I ----	3	3	4
BI 207	Parasitology -----	3	3	4
BI 250	Microbiology -----	3	4	5
		12	16	18
<b>Term 5</b>				
EH 202	Environmental Sanitation -----	3	3	4
EH 203	Food Sanitation -----	2	3	3
LA 804	Effective Speaking -----	3	0	3
LA 820	Economics -----	3	0	3
BI 254	Microbiology -----	2	6	4
		13	12	17
<b>Term 6</b>				
EH 205	Water Supply and Pollution Control II ----	3	3	4
EH 206	Radiological Health -----	2	3	3
EH 207	Environmental Health Administration ----	1	2	2
LA 810	Psychology -----	3	0	3
LA 830	Sociology -----	3	0	3
PH 110	Physics -----	2	2	3
		14	10	18

\*MA 101 Mathematics will not be required if the student has had satisfactory prior training. Alternate course noted above will be substituted.

## **LIBERAL ARTS AND SCIENCES**



The Liberal Arts curriculum is primarily intended to enable a student to take the first two years of a four-year degree within the community college.

This is a two-year, university-parallel program designed especially for those who wish to continue their college education at a four-year college or university. It offers an Associate in Arts Degree.

Students finishing this curriculum have completed a breadth of education preparatory to such professional careers as law, medicine and education. A special science-emphasis option offers particularly appropriate preparation for students who plan to move from Broome Tech to pre-medicine, pre-dental or pre-pharmacy programs in four-year colleges.

The required and elective courses give the students essential credits in such areas as mathematics, language, science, social studies and the humanities.

This curriculum, moreover, can perform an exploratory function for many students. It is regarded as an ideal course of study for those who have not yet decided on a specific career. The program enables them to complete certain studies while they are making their career decisions.

### **FOREIGN LANGUAGES**

1. The point at which a student continues his high school language is determined by his achievement on a placement test.
2. A student who repeats a level of language already studied in high school is cautioned that, although associate degree credit is granted for these studies, he may ultimately lose some language credit at the college to which he transfers and may be required to do additional study to make up this loss at the transfer college.
3. A new language may be started. Four-year colleges do not ordinarily give transfer credit for less than one year of language study, and a two-year sequence is preferable.

# Liberal Arts and Sciences

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
LA 130	English Composition -----	3	0	3
LA 145	Development of Western Civilization -----	3	0	3
	*Mathematics or Elective -----	3-4	0	3-4
	**Biology, Chemistry or Physics -----	3	3	4
	Language or Philosophy -----	4-3	0	4-3
PE 102	Physical Education -----	2	0	1
		17-19	3	17-19
<b>Term 2</b>				
LA 131	English Composition -----	3	0	3
LA 146	Development of Western Civilization -----	3	0	3
	*Mathematics or Elective -----	3-4	0	3-4
	**Biology, Chemistry or Physics -----	3	3	4
	Language or Philosophy -----	4-3	0	4-3
PE 101	Physical Education -----	2	0	1
		17-19	3	17-19
<b>Term 3</b>				
LA 132	English Composition -----	3	0	3
LA 147	Development of Western Civilization -----	3	0	3
	*Mathematics or Elective -----	3-4	0	3-4
	**Biology, Chemistry or Physics -----	3	3	4
	Language or Philosophy -----	4-3	0	4-3
PE 103	Physical Education -----	2	0	1
		17-19	3	17-19

\*Students who have completed 3½ units of secondary school mathematics (through Advanced Algebra) may take a one-year sequence in Analytic Geometry and Calculus or a non-Mathematic elective.

\*\*Students may defer science until the second year and in its place elect a social science course.

## 2nd YEAR

<b>Term 4</b>				
LA 233	English Literature -----	3	0	3
	Social Science Elective -----	3	0	3
	†Electives -----	9	0	9
PE 204	Physical Education -----	2	0	1
		17	0	16†
<b>Term 5</b>				
LA 234	English Literature -----	3	0	3
	Social Science Elective -----	3	0	3
	†Electives -----	9	0	9
PE 205	Physical Education -----	2	0	1
		17	0	16†
<b>Term 6</b>				
LA 235	English Literature -----	3	0	3
	Social Science Elective -----	3	0	3
	†Electives -----	9	0	9
PE 206	Physical Education -----	2	0	1
		17	0	16†

†Students must take enough elective hours to fulfill the degree requirement of a minimum of 99 credit hours.



# Liberal Arts Science-Emphasis Option

Students who intend to continue their education in such fields as medicine, dentistry, pharmacy should take this option.

They should be advised that this curriculum presumes a high level of academic preparation in the secondary school. The student should consult with his faculty advisor when he is doubtful about the adequacy of his pre-college, academic preparation. Sciences may be chosen from Biology, Chemistry, and Physics.

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
LA 130	English Composition -----	3	0	3
LA 145	Development of Western Civilization -----	3	0	3
	*Mathematics or Elective -----	3	0	3
	Science -----	3	3	4
	Science -----	3	3	4
PE 101	Physical Education -----	2	0	1
		17	6	18
<b>Term 2</b>				
LA 131	English Composition -----	3	0	3
LA 146	Development of Western Civilization -----	3	0	3
	*Mathematics or Elective -----	3	0	3
	Science -----	3	3	4
	Science -----	3	3	4
PE 102	Physical Education -----	2	0	1
		17	6	18
<b>Term 3</b>				
LA 132	English Composition -----	3	0	3
LA 147	Development of Western Civilization -----	3	0	3
	*Mathematics or Elective -----	3	0	3
	Science -----	3	3	4
	Science -----	3	3	4
PE 103	Physical Education -----	2	0	1
		17	6	18

\*Students who have completed  $3\frac{1}{2}$  units of secondary school mathematics may take a one-year sequence in Analytic Geometry and Calculus or a non-Mathematics elective.

Term 4		2nd YEAR		
LA 233	English Literature -----	3	0	3
	Social Science -----	3	0	3
	Science -----	3	3	4
	Science -----	3	3	4
	Humanities Elective -----	3	0	3
PE 204	Physical Education -----	2	0	1
		17	6	18
Term 5				
LA 234	English Literature -----	3	0	3
	Social Science -----	3	0	3
	Science -----	3	3	4
	Science -----	3	3	4
	Humanities Elective -----	3	0	3
PE 205	Physical Education -----	2	0	1
		17	6	18
Term 6				
LA 235	English Literature -----	3	0	3
	Social Science -----	3	0	3
	Science -----	3	3	4
	Science -----	3	3	4
	Humanities Elective -----	3	0	3
PE 206	Physical Education -----	2	0	1
		17	6	18



# MECHANICAL TECHNOLOGY

The nature of industry today makes it more important than ever that applicants for employment have a high degree of technical competence. The purpose of the Mechanical Technology curriculum is to prepare qualified young people of our community to fill the growing demand in industry and business for engineering technicians in the mechanical field.

Recent studies of our complex industrial economy show a critical need for engineering technicians. Many more are needed than can be supplied by two-year colleges, which explains why graduates of this curriculum have little difficulty finding jobs.

Initial employment opportunities are in the area between the skilled craftsman and the professional engineer, with the emphasis in the direction of the engineer.

Recent graduates have been employed in such areas as design drafting, product design, metallurgical laboratories, quality control, time study, purchasing, technical writing and process planning, to name just a few. Some of the companies that hired last year's graduates are IBM, General Electric, Raymond Corporation, DuPont and Eastman Kodak. Many graduates accept positions far beyond the boundaries of New York State, even though the attempt is made to satisfy the needs of industry in Broome County.

This is an ECPD accredited Engineering Technology curriculum. ECPD is the Engineers Council for Professional Development.





# Mechanical Technology

## 1st YEAR

		Hours Per Week		
Term 1		Class	Lab	Credits
MT 110	Engineering Drawing -----	0	3	1
MT 130	Manufacturing Processes -----	2	2	3
MT 151	Orientation -----	1	0	0
LA 801	English -----	3	0	3
LA 810	Psychology -----	3	0	3
MA 140	College Algebra and Trigonometry -----	4	0	4
PH 140	Physics -----	3	2	4
		16	7	18
Term 2				
MT 111	Eng. Drawing and Descriptive Geometry --	1	3	2
MT 131	Manufacturing Processes -----	1	3	2
MT 155	Applied Mechanics -----	3	0	3
LA 802	English -----	3	0	3
MA 141	Analytic Geometry and Calculus -----	3	0	3
PH 141	Physics -----	3	2	4
		14	8	17
Term 3				
MT 132	Manufacturing Processes -----	1	3	2
MT 156	Applied Mechanics -----	3	0	3
CH 104	Chemistry -----	3	2	4
LA 803	English -----	3	0	3
MA 142	Analytic Geometry and Calculus -----	3	0	3
PH 142	Physics -----	3	2	4
		16	7	19

## 2nd YEAR

Term 4				
MT 240	Precision Measurement -----	1	3	2
MT 257	Strength of Materials -----	3	3	4
MT 261	Fluid Mechanics -----	3	0	3
LA 830	Sociology -----	3	0	3
AD 120	Computer Programming -----	2	2	3
ET 127	Electricity -----	3	3	4
		15	11	19
Term 5				
MT 165	Metallurgy -----	3	3	4
MT 220	Mechanical Design -----	2	3	3
MT 260	Thermodynamics I -----	3	3	4
MT 267	Statistical Quality Control -----	3	2	4
ET 128	Electricity -----	3	3	4
		14	14	19
Term 6				
MT 135	Materials and Processes -----	3	3	4
MT 221	Mechanical Design -----	3	3	4
MT 262	Thermodynamics II -----	3	3	4
LA 820	Economics -----	3	0	3
ET 129	Electronics -----	3	3	4
		15	12	19

**2 Quarters of Co-operative Work Required for Graduation**



## **MEDICAL LABORATORY TECHNOLOGY**

The demand for technical assistants in the para-medical areas is rapidly increasing with the majority finding employment in analytical, control and research laboratories of chemical and pharmaceutical companies. Others are employed as research assistants at large universities. Many also work for hospitals, food processing companies and public health departments.

To provide the background necessary for work in these areas the program includes courses in chemistry, physiology, microbiology, histology, pharmacology and physics.

Extensive laboratory work in bioanalytical procedures, chemical instrumentation, microbiological and immunological techniques and radiation physics helps to develop the skill needed for a wide range of job opportunities.

Work in the sciences is balanced by a program in general education including social sciences, English and mathematics.

# Medical Laboratory Technology

		1st YEAR		
Term 1		Hours Per Week		
		Class	Lab	Credits
LA 801	English -----	3	0	3
MA 101	*Mathematics or LA 850 Political Science --	3	0	3
CH 101	Chemistry -----	3	3	4
MO 101	Ethics and Orientation -----	0	2	1
BI 131	Zoology -----	3	3	4
BU 160	*Typewriting or LA 805 American Literature	0-3	5-0	2-3
		12-15	13-8	17-18
Term 2				
LA 802	English -----	3	0	3
MA 102	Mathematics -----	3	0	3
CH 122	Chemistry -----	3	3	4
BI 132	Zoology (Anatomy) -----	3	3	4
PH 106	Physics -----	2	2	3
		14	8	17
Term 3				
LA 803	English -----	3	0	3
CH 123	Chemistry -----	3	3	4
BI 135	Zoology (Physiology) -----	3	6	5
PH 107	Physics -----	2	2	3
PH 110	Physics (Radiation) -----	2	2	3
		13	13	18
		2nd YEAR		
Term 4				
LA 820	Economics -----	3	0	3
BI 234	†Physiology -----	2	4	4
BI 250	Microbiology -----	3	4	5
CH 224	Organic Chemistry -----	3	3	4
BI 236	†Histology -----	2	3	3
		13	14	19
Term 5				
LA 810	Psychology -----	3	0	3
BI 235	†Physiology -----	2	4	4
BI 251	†Microbiology -----	2	4	4
CH 225	Organic Chemistry -----	2	3	3
CH 226	Instrumental Analysis -----	2	6	4
		11	17	18
Term 6				
LA 830	Sociology -----	3	0	3
BI 252	†Microbiology -----	2	4	4
BI 240	†Physiology -----	2	6	4
CH 227	Instrumental Analysis -----	2	6	4
BI 285	Pharmacology -----	3	0	3
		12	16	18

\*MA 101 Mathematics and BU 160 Typewriting will not be required if the student has had satisfactory prior training and/or experience. The alternate courses noted above will be substituted.

†At both the college and cooperating hospitals.



## MEDICAL OFFICE ASSISTANT

The Medical Assistant has many employment opportunities in physicians' offices, hospital record rooms and related fields. Broome Tech prepares young adults for this career by offering a specialized training that combines physician's office management with medical records training and office laboratory procedures.

In addition to a basic knowledge of such skills as typing, accounting, office procedure and medical records control, the assistant must know such technical subjects as anatomy, physiology, microbiology and pharmacology. Laboratory procedures of a physician's office, such as urinalysis and hematology, complete the program.

Medical records training experiences at cooperating hospitals include quantitative analysis of medical records, hospital statistics and reports, stenographic pool, disease and operation indexing and filing. The preparation of correspondence and medical abstracts, admitting office experience and preparation of medical reports of adjunct departments, such as X-ray, laboratory, clinical and surgical pathology, are also included.

There have been too few graduates in recent years to meet the demand for people in this important phase of medical service. As a result, employment opportunities have been good.



# Medical Office Assistant

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
MO 101	Ethics and Orientation -----	0	2	1
BI 131	Zoology -----	3	3	4
LA 801	English -----	3	0	3
MA 101	*Mathematics or LA 850 Political Science --	3	0	3
CH 101	Chemistry -----	3	2	4
BU 161	*Typewriting or LA 805 American Literature	0-3	5-0	2-3
		12-15	13-8	17-18
<b>Term 2</b>				
MO 102	Medical Terminology -----	3	0	3
BI 132	Zoology (Anatomy) -----	3	3	4
LA 802	English -----	3	0	3
MA 105	Mathematics -----	3	0	3
CH 105	Chemistry -----	3	0	3
BU 162	Typewriting -----	0	5	2
		15	8	18
<b>Term 3</b>				
MO 123	Medical Records Science -----	3	3	4
BI 133	Zoology (Physiology) -----	3	3	4
BI 134	Bioanalysis -----	0	3	1
LA 803	English -----	3	0	3
BU 151	Business English -----	3	0	3
BU 163	Typewriting -----	2	3	3
		14	12	18

## 2nd YEAR

<b>Term 4</b>				
MO 224	Medical Records Science -----	1	6	3
MO 234	Hematology -----	1	4	3
BI 250	Microbiology -----	3	4	5
LA 820	Economics -----	3	0	3
BU 283	Medical Office Practice -----	2	3	3
		10	17	17
<b>Term 5</b>				
MO 205	Medical Office Procedures -----	2	3	3
MO 225	Medical Records Science -----	2	6	4
BI 253	Microbiology -----	1	4	3
LA 810	Psychology -----	3	0	3
BU 284	Medical Office Practice -----	2	3	3
		10	16	16
<b>Term 6</b>				
MO 206	Medical Office Procedures -----	2	3	3
MO 226	Medical Records Science -----	1	6	3
BI 285	Pharmacology -----	3	0	3
LA 804	Effective Speaking -----	3	0	3
LA 830	Sociology -----	3	0	3
BU 285	Medical Office Practice -----	2	3	3
		14	12	18

\*MA 101 Mathematics and BU 161 Typewriting will not be required if the student has had satisfactory prior training and/or experience. Alternate courses will be substituted, as noted above.

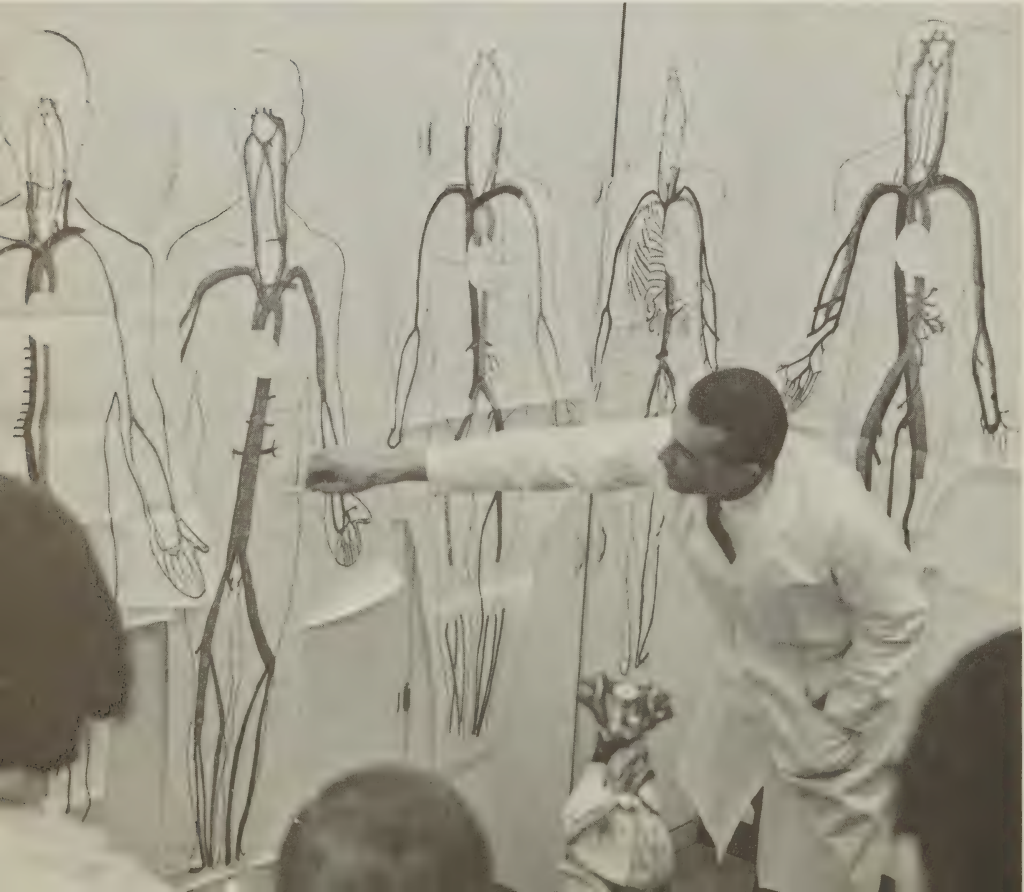
## NURSING

Because of the shortage of qualified nurses in Broome County hospitals, Broome Technical Community College is offering a two-year, college-based curriculum to prepare graduates for immediate entrance into the first level of registered nursing. The shortage also means that employment opportunities are plentiful for those satisfactorily completing this program.

Graduates of this curriculum will be eligible to take the New York State licensing examination for registered nurses. They can then find immediate employment in bedside nursing care, or they may wish to continue their education for the baccalaureate and higher degrees in the nursing field.

The curriculum, which students should complete in two years, will operate as a college program, with classes and laboratories held on the campus. Clinical instruction is to be in the cooperating hospitals of the Triple Cities. The clinical experiences include caring for individuals in all age groups, as well as observation periods in community health and welfare agencies.

Mature men and women are encouraged to enter this program along with recent high school graduates, whether they are married or single.





# Nursing

## 1st YEAR

		Hours Per Week		
		Class	Lab	Credits
<b>Term 1</b>				
RN 121	Nursing (Fundamentals) I -----	4	6	6
BI 131	Zoology -----	3	3	4
LA 801	English -----	3	0	3
LA 286	Psychology -----	3	0	3
		13	9	16
<b>Term 2</b>				
RN 122	Nursing (Fundamentals) II -----	4	6	6
BI 132	Zoology (Anatomy) -----	3	3	4
LA 802	English -----	3	0	3
CH 101	Chemistry -----	3	2	4
		13	11	17
<b>Term 3</b>				
RN 123	Nursing -----	4	6	6
BI 133	Zoology (Physiology) -----	3	3	4
LA 803	English -----	3	0	3
CH 102	Chemistry -----	3	2	4
		13	11	17

## 2nd YEAR

<b>Term 4</b>				
RN 224	Nursing -----	5	15	10
BI 159	Microbiology -----	3	4	5
LA 280	Sociology -----	3	0	3
		11	19	18
<b>Term 5</b>				
RN 225	Nursing -----	5	15	10
LA 281	Sociology -----	3	0	3
LA 287	Psychology -----	3	0	3
		11	15	16
<b>Term 6</b>				
RN 226	Nursing -----	5	15	10
LA 282	Sociology -----	3	0	3
LA 288	Psychology -----	3	0	3
		11	15	16

## X-RAY TECHNOLOGY

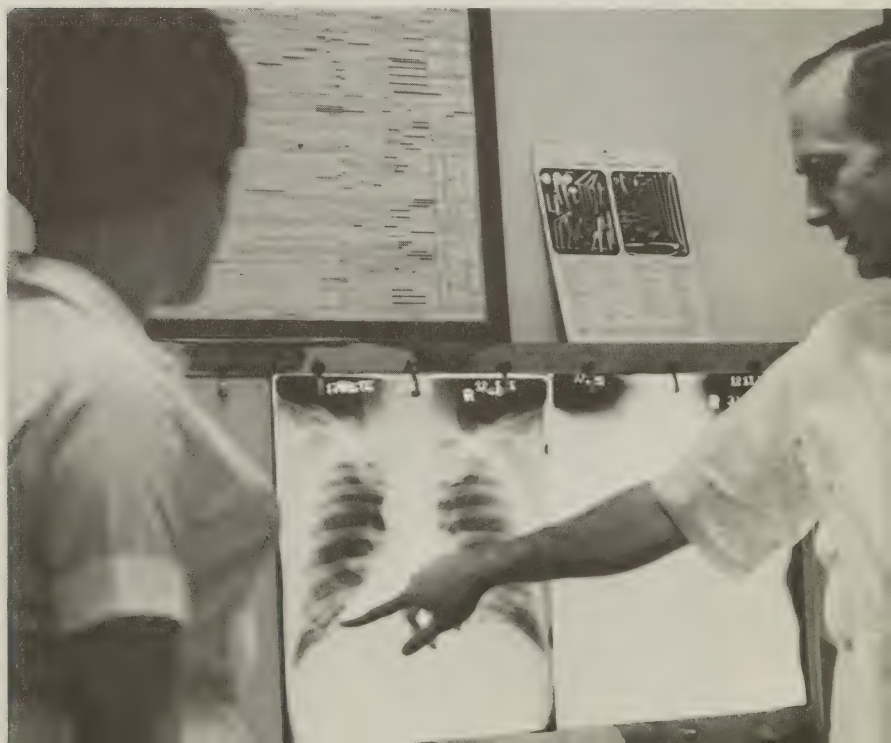
X-ray technicians are in great demand, with the majority of them finding employment in hospitals. They also work, however, for radiologists who maintain private practices, for government agencies, both civil and military, and in industry. Their work consists primarily of operating X-ray units to determine the presence of disease or injury in patients. They also assist physicians in giving X-ray and nuclear therapy treatment.

The course in X-Ray Technology at Broome Tech consists of two academic years and two summers of study both at the College and at cooperating hospitals. Upon satisfactory completion of the work, the student receives the Associate in Applied Science Degree from the College. He or she is then eligible to take the New York State Health Department examination, which must be passed for one to be licensed to practice as an X-ray technician, and/or the Civil Service examination.

An X-ray technician needs to understand why things are done, as well as to know how to do them. Thus at Broome Tech courses are designed to give the student the proper background to understand the principles involved in his work.

Training in the radiology department of the cooperating hospitals provides the opportunity for the practical application of the college study. This training is the vital core of the program since it enables the student to observe and assist in the handling of sick and injured patients as they undergo a wide variety of radiological examinations.

The young man or woman who desires to qualify for this career must be physically capable and mentally alert. He must be fitted by training and personality to work with the sick and injured on the one hand, and with the professional medical people on the other.



# X-Ray Technology

## 1st YEAR

### Hours Per Week

**Class      Lab      Credits**

<b>Term 1</b>				
XR 121	Radiography -----	3	4	4
XR 131	Radiological Science -----	0	2	1
XR 141	Hospital Radiographic Technique -----	0	16	4
LA 801	English -----	3	0	3
BI 132	Zoology (Anatomy) -----	3	3	4
MA 101	*Mathematics or LA 850 Political Science --	3	0	3

**12      25      19**

<b>Term 2</b>				
XR 122	Radiography -----	3	4	4
XR 132	Radiological Science -----	0	2	1
XR 142	Hospital Radiographic Technique -----	0	16	4
LA 802	English -----	3	0	3
BI 133	Zoology (Physiology) -----	3	3	4
PH 106	Physics -----	2	2	3

**11      27      19**

<b>Term 3</b>				
XR 113	Physics (X-ray Tube) -----	1	0	1
XR 123	Radiography -----	2	4	3
XR 133	Radiological Science -----	1	0	1
XR 143	Hospital Radiographic Technique -----	0	16	4
LA 803	English -----	3	0	3
PH 107	Physics -----	2	2	3
PH 110	Physics (Radiation) -----	2	2	3

**11      24      18**

## SUMMER TERM

XR 124	Radiography -----	2	0	2
XR 144	Hospital Radiographic Technique -----	Graduation Requirement		

## Term 4      2nd YEAR

XR 204	Anatomy (Topographic) -----	1	0	1
XR 224	Radiography -----	1	4	2
XR 234	Radiological Science -----	2	0	2
XR 244	Hospital Radiographic Technique -----	0	24	6
XR 254	Radiotherapy -----	2	0	2
LA 820	Economics -----	3	0	3

**9      28      16**

<b>Term 5</b>				
XR 225	Radiography -----	2	4	3
XR 235	Radiological Science -----	2	0	2
XR 245	Hospital Radiographic Technique -----	0	24	6
LA 810	Psychology -----	3	0	3

**7      28      14**

<b>Term 6</b>				
XR 236	Radiological Science -----	2	0	2
XR 237	Trends in Radiological Science -----	3	0	3
XR 246	Hospital Radiographic Technique -----	0	24	6
LA 830	Sociology -----	3	0	3

**8      24      14**

## SUMMER TERM

XR 238	Radiological Science -----	2	0	2
XR 247	Hospital Radiographic Technique -----	Graduation Requirement		

\*MA 101 Mathematics will not be required if the student has had satisfactory prior training and/or experience. Alternate course will be substituted, as noted above.



# GENERAL STUDIES CERTIFICATE PROGRAM

The General Studies Certificate Program consists of a year's study and provides students with an opportunity to prepare for acceptance into any degree program on the Broome Tech campus.

This program evolved from the experience gained with the original concept of a Pre-Technical Program which prepared students for the engineering and technological curriculums.

In recent years, many students who completed the Pre-Tech Program have chosen one of the College's ever expanding non-technical offerings.

Therefore, to better fulfill the educational needs of the non-technically oriented students, the college has expanded the original program to include options that are directly related to non-technical curriculums. A sequence of logic for those interested in the liberal arts program has been added to the basic core of the original Pre-Tech Program.

This basic core still includes English, mathematics and physical science. These give the student sufficient general background to study in any of the college's degree programs, if he changes his mind after the year of General Studies Certificate work, regardless which option he pursued.

## General Studies Certificate Program

ONE YEAR			Hours Per Week		
			Class	Lab	Credits
<b>Term 1</b>					
GS 150	English -----		3	0	0
GS 110	Elements of Technical Mathematics -----		5	0	0
GS 101	Physical Science -----		6	0	0
GS 120	Technical Calculations -----		0	4	0
GS 130	*Engineering Drawing (Technical Option) --		0	3	1
	or				
GS 153	*Verbal Reasoning (Liberal Arts Option) --		3	0	0
			14-17	4-7	0-1
<b>Term 2</b>					
GS 151	English -----		3	0	0
GS 111	Elements of Technical Mathematics -----		5	0	0
GS 102	Physical Science -----		6	0	0
GS 121	Technical Calculations -----		0	4	0
GS 131	*Engineering Drawing (Technical Option) --		0	3	1
	or				
GS 154	*Verbal Reasoning (Liberal Arts Option) --		3	0	0
			14-17	4-7	0-1
<b>Term 3</b>					
GS 152	English -----		3	0	0
GS 112	Elements of Technical Mathematics -----		5	0	0
GS 103	Physical Science -----		3	0	0
GS 122	Technical Calculations -----		0	2	0
GS 140	Chemistry -----		3	2	0
GS 132	*Engineering Drawing (Technical Option) --		0	3	1
	or				
GS 155	*Verbal Reasoning (Liberal Arts Option) --		3	0	0
			14-17	4-7	0-1

\*Options are 3-quarter sequences, so students must take all three courses in the same option.

## **COURSE DESCRIPTIONS**

### **Numbering System**

All Broome Tech course numbers are preceded by two letters which in most instances stand for the department of the College responsible for teaching them. Courses numbered from 100 to 199 are generally first-year level and those from 200 to 299 second-year.

AD	-----	Special Programs (Non-Departmental)
BI	-----	Biological Sciences
BU	-----	Business
CH	-----	Chemical Technology
CT	-----	Civil Technology
DH	-----	Dental Hygiene
EH	-----	Environmental Health
ET	-----	Electrical Technology
GS	-----	General Studies Certificate Program
LA	-----	Liberal Arts
MA	-----	Mathematics
MO	-----	Medical Office Assistant
MT	-----	Mechanical Technology
PE	-----	Physical Education
PH	-----	Physics
RN	-----	Nursing
XR	-----	X-Ray Technology



# **SPECIAL PROGRAMS**

## **COMPUTER CENTER**

An IBM 1130 digital computer is an outstanding example of Broome Tech's modern equipment. Many colleges have built their engineering and business courses around the computer, and many industries depend on its rapid calculations. Consequently, both transfer-minded students and those preparing for immediate employment after graduation are being introduced to the world of the computer. Most students in technical programs and in the business curriculums receive instruction in using the 1130. The computer is also used for record-keeping by the College's administration.

### **AD 110 Introduction to Computer Programming 1 Credit**

Historical development of computers, introduction to data processing systems, binary mathematics, and the IBM 1130 digital processing system. Introduction of Fortran IV, along with flow diagramming and debugging techniques. Some working experiences on the 1130 computer at student's convenience. **1 Class Hour**

### **AD 111 Computer Programming and Numerical Analysis 3 Credits**

Programming and the use of the IBM 1130 digital computer. Fortran IV along with block diagramming, numbering and coding systems. Numerical topics such as types of errors, evaluation of functions, roots of equations, numerical evaluation of integrals. Discussion of monitor and time sharing systems as well as graphic plotter programming. **2 Class Hours, 2 Laboratory Hours**

**Prerequisite: MA 171 Analytic Geometry and Calculus**

### **AD 120 Fundamentals of Computer Programming 3 Credits**

Historical development of computers, introduction to data processing systems, binary, octal and hexadecimal mathematics and the IBM 1130 digital processing system. Machine language instructions and Fortran IV will be studied along with block diagramming and debugging techniques. Discussion of monitor and executive systems including the concept of time sharing.

Programming drills and exercises will reinforce the basic principles by providing "hands-on" training. **2 Class Hours, 2 Laboratory Hours**

**Prerequisite: MA 141 Analytic Geometry and Calculus**

## **BIOLOGICAL SCIENCES**

### **BI 101 Biology 4 Credits**

A detailed study of the structure and function of cells, including such ideas as the physical and chemical properties of protoplasm, cell division, animal and plant cell nutrition and cell metabolism. **3 Class Hours, 3 Laboratory Hours**

### **BI 102 Biology 4 Credits**

The animal kingdom with emphasis on more complex forms and the anatomy and physiology of the various systems of man.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: BI 101 Biology**



## BI 103 Biology

4 Credits

A phylogenetic and morphological survey of the plant kingdom. Also a consideration of such topics as heredity, evolution and ecology as related to both plants and animals.

3 Class Hours, 3 Laboratory Hours

**Prerequisite:** BI 102 Biology

## BI 106 Limnology

4 Credits

Chemistry, physics, geology and biology of fresh water lakes, rivers and streams. Water sampling techniques are learned, fresh water organisms are identified, and health and recreational aspects of fresh water pollution are stressed.

**Must be taken concurrently with CH 123 Chemistry.**

2 Class Hours, 6 Laboratory Hours

## BI 131 Zoology

4 Credits

Anatomy and physiology of animals, including chemical and physical processes such as cellular respiration, reproduction and development, energy production and transfer.

3 Class Hours, 3 Laboratory Hours

## BI 132 Zoology (Anatomy)

4 Credits

Gross and functional anatomy of the human body. Intensive study of all systems illustrated by specimens and models. Detailed dissection and microscopic study of foetal pig. Terminology.

3 Class Hours, 3 Laboratory Hours

## BI 133 Zoology (Physiology)

4 Credits

Fundamental physiological processes and how these processes regulate the human machine. Emphasis on general principles, integration, organization and control.

3 Class Hours, 3 Laboratory Hours

**Prerequisite:** BI 132 Zoology (Anatomy) or BI 102 Biology

## BI 134 Bioanalysis

1 Credit

Laboratory introduction to microscopic and chemical analysis of blood and urine. **Must be taken concurrently with BI 133 Zoology.**

3 Laboratory Hours

## BI 135 Zoology (Physiology)

5 Credits

Fundamental physiological processes and how they regulate the human machine. Emphasis on general principles, integration, organization, control. These are same topics as BI 133 Zoology (Physiology) but with additional laboratory stress on chemical and physical measurements of body processes.

3 Class Hours, 6 Laboratory Hours

**Prerequisite:** BI 132 Zoology (Anatomy)

## BI 159 Microbiology

5 Credits

General and medical microbiology. The basic phases of immunology. Asepsis, disinfection, sterilization, cultivation, identification. Test used for diagnosis and immunization.

3 Class Hours, 4 Laboratory Hours

**Prerequisite:** CH 102 Chemistry

## BI 161 Nutrition

2 Credits

Basic nutrition, essential nutrients, requirements and recommended allowances. The role of dietary intake in an individual's health.

2 Class Hours



### **BI 171 Anatomy and Physiology**

**4 Credits**

Gross and microscopic anatomy of the human body and the function of its parts. Emphasis is on form and structure. Laboratory work includes microscopic anatomy, dissection of the foetal pig and cat, a study of the systems and their interrelationships. Dental hygiene students will take a two-hour laboratory.

**3 Class Hours, 3 Laboratory Hours**

### **BI 172 Anatomy and Physiology**

**4 Credits**

Continued study of gross and microscopic anatomy, the relationship of function to structure, with emphasis on basic physiology. Chemical tests and additional dissection. Dental hygiene students will take a two-hour laboratory.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: BI 171 Anatomy and Physiology**

### **BI 175 Histology and Embryology**

**3 Credits**

Lecture and laboratory study of the fundamental body tissues and different phases of embryonic development. Emphasis on the origin and structure of the tissues of the oral cavity.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BI 171 Anatomy and Physiology**

**BI 207 Parasitology****4 Credits**

Parasites and insects of importance in environmental health. Identification and control procedures.

**3 Class Hours, 3 Laboratory Hours****Prerequisite: BI 131 Zoology or BI 103 Biology****BI 234 Physiology****4 Credits**

Continued study of physiological processes. Emphasis on blood and circulatory system.

**2 Class Hours, 4 Laboratory Hours****Prerequisite: BI 135 Zoology (Physiology)****BI 235 Physiology****4 Credits**

Emphasis on the body functions of respiration, digestion, metabolism and excretion. Laboratory work includes related chemical tests and physio-chemical measurements of the body functions.

**2 Class Hours, 4 Laboratory Hours****Prerequisite: BI 234 Physiology and CH 224 Chemistry****BI 236 Histology****3 Credits**

The essential morphological and functional characteristics of tissues and organs of the animal body. Technique of animal tissue preparation, both frozen and imbedded.

**2 Class Hours, 3 Laboratory Hours****Prerequisite: BI 132 Zoology (Anatomy) or BI 102 Biology****BI 237 Genetics****5 Credits**

Comprehensive coverage of heredity and variation. Integration of fundamental biological principles including microbial genetics to illustrate many of the important genetic principles that apply to all forms of life.

**3 Class Hours, 4 Laboratory Hours****Prerequisites: BI 102 Biology or BI 131 Zoology and BI 250 Microbiology****BI 239 Embryology****5 Credits**

Vertebrate reproduction and development from single-celled egg to complete organ systems. Cellular, tissue and organ differentiation and organization. Based primarily on frog, chick and pig development.

**3 Class Hours, 4 Laboratory Hours****Prerequisite: BI 102 Biology****BI 240 Physiology****4 Credits**

Functions of the body including enzyme systems, the endocrines, electrolyte balance and acid-base regulation. Emphasizes the physiological processes involved and related assays.

**2 Class Hours, 6 Laboratory Hours****Prerequisite: BI 235 Physiology and CH 225 Chemistry****BI 250 Microbiology****5 Credits**

The biology of the common bacteria and related micro-organisms. Non-pathogens and pathogens. Basic phases of immunology. Asepsis, disinfection, sterilization, cultivation, identification.

**3 Class Hours, 4 Laboratory Hours****Prerequisite: 1 year of biological science or of chemistry****BI 251 Microbiology****4 Credits**

Emphasis upon immunity and immunological procedures. Pathogenic bacteria, viruses, true fungi, rickettsiae and protozoa are studied first hand, from preserved specimens or from microscopic slides.

**2 Class Hours, 4 Laboratory Hours****Prerequisite: BI 250 Microbiology and BI 234 Physiology**



## **BI 252 Microbiology**

**4 Credits**

Continued study of the principles of immunity and the practice of serological techniques. Agglutination and precipitation tests in general, inflammation and leucocyte response, blood grouping and typing. **2 Class Hours, 4 Laboratory Hours**  
**Prerequisite: BI 251 Microbiology**

## **BI 253 Microbiology**

**3 Credits**

Continued study of the principles of immunity, with emphasis on blood banking and serology. **1 Class Hour, 4 Laboratory Hours**  
**Prerequisite: BI 250 Microbiology**

## **BI 254 Microbiology**

**4 Credits**

Microbiological analysis of milk, food, water, sewage, air.

**2 Class Hours, 6 Laboratory Hours**  
**Prerequisites: BI 250 Microbiology and CH 123 Chemistry**

## **BI 285 Pharmacology**

**3 Credits**

The action of drugs, their sources, properties, preparation. Administration, the mathematics of pharmacy and prescription writing. **3 Class Hours**  
**Prerequisites: BI 133 or BI 135 Zoology (Physiology) or BI 172 Anatomy and Physiology and BI 250 Microbiology or BI 159 Microbiology**

## **BI 286 Mathematics (Pharmacy)**

**1 Credit**

Mathematical calculations as applied to the preparation of drugs and solutions. **1 Class Hour**

## **BI 287 Public Health**

**2 Credits**

An over-all picture of public health (history, philosophy, structure, services) with emphasis on community dental health. Field trips to various health agencies. **2 Class Hours**

# **BUSINESS**

## **BU 101 Accounting**

**3 Credits**

Fundamentals of accounting from the books of original entry to the preparation of financial statements. **2 Class Hours, 2 Laboratory Hours**

## **BU 102 Accounting**

**3 Credits**

Controlling accounts and special journals. Accounting for specific items such as cash, accounts receivable, fixed assets. **2 Class Hours, 2 Laboratory Hours**  
**Prerequisite: BU 101 Accounting**

## **BU 103 Accounting**

**3 Credits**

Voucher system, partnerships, corporations, analysis of financial statements. Use of practice set of books. **2 Class Hours, 2 Laboratory Hours**  
**Prerequisite: BU 102 Accounting**

## **BU 104 Accounting**

**3 Credits**

Voucher system, corporations, manufacturing accounting, payroll accounting, analysis of financial statements. Use of practice set of books. **2 Class Hours, 2 Laboratory Hours**  
**Prerequisite: BU 102 Accounting**

**BU 121 Finance****3 Credits**

Financial principles and procedures. Detailed analyses of such factors as forms of business organization, corporate organization and problems, financial structure of business groups, financial instruments, surplus and reserves, credit and collections, reorganizations.

**3 Class Hours****Prerequisite: BU 102 Accounting****BU 141 Business Mathematics****3 Credits**

Review of arithmetic operations. Preparation and use of shortcut operations. Instruction, review and drill in percentage. Cash and trade discounts, markup, payroll, sales, property and other taxes. Simple and compound interest, bank discounts, interest, investments, annuities and algebraic applications.

**3 Class Hours****BU 142 Business Statistics****3 Credits**

Concepts and mechanics of basic statistical methods applicable to problems of business and economics.

**3 Class Hours****Prerequisite: BU 141 Business Mathematics****BU 145 Business Law****3 Credits**

Brief study of the federal and state judicial systems. Basic principles of contracts, involving the requisites for valid contracts, parties to the contracts, offer and acceptance, performance and discharge. Applications of contracts to agency. Legal aspects of partnerships and corporations, real estate law.

**3 Class Hours****BU 146 Business Law****3 Credits**

Contracts as applied to sales, bailments, carriers, warehousemen. Negotiable instruments, the rights and obligations associated with them.

**3 Class Hours****Prerequisite: BU 145 Business Law****BU 151 Business English****3 Credits**

Development of desirable letter writing style. Review of basic letter mechanics. Inquiry and reply, claim and adjustment, credit and collection, sales and promotion, application letters. Composition of business correspondence.

**3 Class Hours****Prerequisite: LA 801 English****BU 158 Construction Law****3 Credits**

Fundamentals of business and union contracts, insurance, mechanic's liens, labor-management relations, boundary line rights and obligations, statutes and ordinances, monetary damages, injunction and mandamus, professional registration.

**3 Class Hours****BU 160 Typewriting****2 Credits**

Development of basic techniques of typewriter operation such as keyboard mastery, accurate and rhythmical stroking, and correct procedures in care and use of the machine. Projects include business letters, forms, manuscripts.

**5 Laboratory Hours****BU 161 Typewriting****2 Credits**

A beginning sequence in touch typewriting to make the operator accurate, rhythmical and moderately rapid in the operation of the typewriter. Development of correct procedures in care and use of the machine. Projects include simple business letters, tabulations, manuscripts, building of typewriting speed.

**5 Laboratory Hours**

## **BU 162 Typewriting**

**2 Credits**

Development of proficiency of techniques in typing business letters, tabulations and miscellaneous business forms.

**5 Laboratory Hours**

**Prerequisite:** BU 161 Typewriting or equivalent

## **BU 163 Typewriting**

**3 Credits**

Continuation of basic skill building with emphasis on speed and accuracy in typing advanced materials, such as rough drafts, complicated tabulations, manuscripts, legal papers and specifications.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite:** BU 162 Typewriting

## **BU 164 Shorthand**

**3 Credits**

A beginning course in Gregg Shorthand, Diamond Jubilee System. Basic principles to promote the ability to read fluently from plates and notes. Longhand transcription from shorthand notes dictated from familiar material at a minimum rate of 60 words per minute.

**2 Class Hours, 3 Laboratory Hours**

## **BU 165 Shorthand**

**3 Credits**

Emphasis on shorthand writing ability at sustained speeds. Transcription at the typewriter from shorthand notes dictated from non-previewed materials at a rate of 60 to 120 words per minute.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites:** BU 161 Typewriting or equivalent  
and BU 164 Shorthand or equivalent

## **BU 166 Shorthand**

**3 Credits**

Emphasis on speed in shorthand writing. Transcription at the typewriter from shorthand notes dictated from non-previewed materials at a rate of 80 to 140 words per minute.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites:** BU 162 Typewriting and BU 165 Shorthand and  
BU 167 Transcription

## **BU 167 Transcription**

**3 Credits**

Development of skill in producing mailable transcripts at the typewriter from the student's shorthand notes. Emphasis on the correct use of grammar, spelling, punctuation, capitalization, vocabulary, numbers.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites:** BU 161 Typewriting or equivalent  
and BU 164 Shorthand or equivalent

## **BU 204 Intermediate Accounting**

**3 Credits**

Assets, liability, capital and operating accounts comprising financial statements. Generally accepted accounting principles followed in the preparation of these statements. Analysis of working capital and preparation of fund and cash flow statements.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite:** BU 103 Accounting

## **BU 205 Intermediate Accounting**

**3 Credits**

Advanced study of partnership accounting including liquidations. Corporation accounting including preparation of consolidated statements, treasury stock, bonds and retained earnings.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite:** BU 204 Intermediate Accounting



## **BU 206 Intermediate Accounting**

**3 Credits**

Installment sales, home office and branch accounting, financial statement analysis. Special ratios, measurements and analysis of operations.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 205 Intermediate Accounting**

## **BU 207 Cost Accounting**

**3 Credits**

The nature and purpose of cost accounting. Accounting for direct labor, materials, and factory overhead with emphasis on job order costing. Standard cost principles and procedures.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 103 Accounting**

## **BU 208 Cost Accounting**

**3 Credits**

Process cost system, inventories, spoilage, factory ledger, special journals.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 207 Cost Accounting**

## **BU 209 Distribution Cost**

**3 Credits**

Methods and procedures of applying cost accounting principles and standard cost methods to administrative, distribution and selling expenses. Measurement and control of distribution cost.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 103 Accounting**

## **BU 210 Cost Accounting**

**3 Credits**

Direct costing, payroll, capital budgeting and non-manufacturing costs.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 208 Cost Accounting**



## **BU 220 Payroll Accounting 3 Credits**

Federal legislation and practical application of accounting for social security and tax withholding from the standpoint of the employer.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 102 Accounting**

## **BU 221 Computer Programming 3 Credits**

Historical development of computers together with an introduction to data processing systems. The Fortran language and an introduction to machine language. An introduction to binary and other base numbering systems, flow diagramming, scaling, techniques of program checking and error analysis.

Applied theory in the laboratory by programming solutions to business problems using the Fortran language.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisites: BU 103 Accounting and BU 142 Business Statistics**

## **BU 222 Federal Tax 3 Credits**

Determination of taxable income and selected aspects of tax accounting. Particular attention is given to the preparation of Federal income tax returns of individuals. Preparation of partnership and corporation tax returns.

**2 Class Hours, 2 Laboratory Hours**

## **BU 223 Internal Auditing 3 Credits**

Internal auditing is an independent appraisal activity within an organization for the review of accounting, financial and other operations as a basis for service to management. It is a managerial control, which functions by measuring and evaluating the effectiveness of other controls.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 103 Accounting**

## **BU 230 Data Processing 3 Credits**

The application of unit record equipment to accounting, statistical and payroll work. Punched card systems. Familiarity with card punch, verifier and sorter.

**2 Class Hours, 2 Laboratory Hours**

## **BU 231 Data Processing 3 Credits**

Programming of unit record equipment by means of wiring diagrams and control panels.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 230 Data Processing**

## **BU 232 Data Processing 3 Credits**

Comprehensive laboratory projects to demonstrate the entire machine accounting cycle. Design and punching of tabulating cards, programming and write-up of project, tabulation of final report.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 231 Data Processing**

## **BU 249 Office Management 3 Credits**

The concept of office work, communication, office automation and planning for the organization staffs, systems and office layouts.

**3 Class Hours**

## **BU 250 Office Management 3 Credits**

Controlling forms, supplies, standards, and budgets, as well as organizational relationships of management, work divisions and people.

**3 Class Hours**

**Prerequisite: BU 249 Office Management**

## **BU 253 Personnel Administration**

**3 Credits**

Techniques and methods used to achieve utilization of manpower in business through proper selection, placement, training, job evaluation, wage setting, employee relations.

**3 Class Hours**

## **BU 254 Industrial Organization and Management**

**3 Credits**

Introduction to the major functions or departments of industry, their inter-relationships, and how they are brought together through organization. Methods, cost, production control, product development, finance, physical facilities, quality control, plant engineering, industrial relations, job evaluation, sales, advertising, budgets, records.

## **BU 260 Engineering Shorthand**

**3 Credits**

Emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from selected areas of industry.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites:** BU 163 Typewriting and BU 166 Shorthand and BU 167 Transcription

## **BU 261 Engineering Shorthand**

**3 Credits**

Emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from selected areas of engineering and of scientific research.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite:** BU 260 Engineering Shorthand

## **BU 263 Technical Typewriting**

**3 Credits**

Specialized training in understanding the correct procedures in preparing typewritten technical materials. Emphasis on typing equations, formulas, laboratory reports.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite:** BU 260 Engineering Shorthand

## **BU 270 Executive Shorthand**

**3 Credits**

Emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from the fields of finance and real estate.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites:** BU 163 Typewriting and BU 166 Shorthand and BU 167 Transcription

## **BU 271 Executive Shorthand**

**3 Credits**

Emphasis on increasing knowledge of basic information and vocabulary, with dictation and transcription of specialized material from the fields of law and insurance.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite:** BU 270 Executive Shorthand

## **BU 272 Office Machines**

**3 Credits**

Training and laboratory experience in the use of office machines, using a variety of makes and types of adding, calculating, accounting, dictating machines.

**1 Class Hour, 4 Laboratory Hours**

## **BU 274 Office Practice**

**4 Credits**

Practical experiences in the operation of adding, calculating, duplicating, transcribing machines. Emphasis on grooming, business ethics, problem-solving techniques in an office atmosphere.

**2 Class Hours, 4 Laboratory Hours**

**Prerequisites:** BU 163 Typewriting and BU 167 Transcription



## **BU 275 Office Practice**

**4 Credits**

Continued development of office machines operations. Useful application of filing procedures. Opportunity for advanced study and skill development projects

**2 Class Hours, 4 Laboratory Hours**

**Prerequisite: BU 274 Office Practice**

## **BU 280 Speed Shorthand**

**3 Credits**

Introduction of special shortcuts to increase efficiency in taking dictation at higher speeds. Dictation of a variety of materials from 100 to 160 words per minute.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite: BU 261 Engineering Shorthand or BU 271 Executive Shorthand**

## **BU 283 Medical Office Practice**

**3 Credits**

Practical experiences in the filing of business records. Correct telephone procedures. Operation of various adding, calculating, transcribing, duplicating machines, as used in medical offices.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite: BU 163 Typewriting**

## **BU 284 Medical Office Practice**

**3 Credits**

The useful application of record-keeping beginning with the basic accounting concepts and utilizing the practical transitions through the entire accounting cycle. Emphasis on the books of entry and their application in preparing various accounting statements used in a medical office.

**2 Class Hours, 3 Laboratory Hours**

## **BU 285 Medical Office Practice**

**3 Credits**

Efficient management of the medical office. Practical usage of medical forms used by insurance companies, workmen's compensation boards, welfare departments and other applicable papers. Advanced medical transcription techniques developed through the use of case histories, admission and discharge summaries, surgical reports.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites: BU 283 Medical Office Practice and**

**BU 284 Medical Office Practice**

## **BU 290 Salesmanship**

**3 Credits**

The principles of sales with practical applications. Prospecting, product and service analysis, meeting objections, demonstrating, sales psychology, preparation of sales presentations.

**2 Class Hours**

## **BU 291 Sales Management**

**3 Credits**

Development of control techniques in the administration of sales forces. Incentive systems, territory planning, development of sales potentials, personnel problems peculiar to this field.

**3 Class Hours**

**Prerequisites: BU 142 Business Statistics and BU 290 Salesmanship**

## **BU 292 Marketing**

**3 Credits**

The distributive phase of economics, from the time goods or services are produced up to the point of consumption. Marketing functions, classification of goods and of markets, marketing channels and agents in each. Relationship to advertising and sales promotion, salesmanship, regulations and laws affecting marketing. Lectures, discussions, case problems.

**3 Class Hours**

## **BU 293 Advertising**

**3 Credits**

Development, economics, functions of advertising. Cost and application, the various media, advertising as a vocation, testing and research utilization. Lectures, demonstrations, field trips.

**3 Class Hours**

**Prerequisite: BU 292 Marketing**

## **BU 294 Advertising**

**3 Credits**

Detailed development of advertisements, copy and layout, method and problems of reproduction. Planning the advertising campaign with step-by-step development.

**3 Class Hours**

**Prerequisite:** BU 293 Advertising

## **BU 295 Market Research**

**3 Credits**

Methods of collecting and interpreting marketing information. Specific applications to problems in market development, market potential, sales management.

**3 Class Hours**

**Prerequisites:** BU 142 Business Statistics and BU 292 Marketing

## **BU 296 Credit**

**3 Credits**

Types of credit, credit department organization, credit reports and information, credit risk factors, collection procedures, analysis of financial statements.

**3 Class Hours**

**Prerequisite:** BU 102 Accounting

## **BU 297 Marketing Management**

**3 Credits**

Analysis of problems and activities in managing the marketing responsibility of manufacturing and wholesaling firms. Study of formulation of product, brand, distribution, pricing policies and their applications.

**3 Class Hours**

**Prerequisite:** BU 292 Marketing

# **CHEMISTRY**

## **CH 101 Chemistry**

**4 Credits**

Fundamental concepts of inorganic chemistry including composition of substances, kinetic and molecular theories, atomic structure and bonding, solutions and colloids, ions in solution and nucleonics. Nursing and Medical Office Assistant students will take a two-hour laboratory.

**3 Class Hours, 3 Laboratory Hours**

## **CH 102 Chemistry**

**4 Credits**

Fundamental concepts of organic chemistry, including carbohydrates, lipids and proteins and their role in metabolism. Same material in class as CH 105 Chemistry, but this course has 3 laboratory hours weekly.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite:** CH 101 Chemistry or CH 110 Chemistry

## **CH 104 Chemistry**

**4 Credits**

Basic laws, principles and theories of chemistry. Structure of matter, periodicity, chemical action, states of matter and solutions, elements of organic chemistry.

**3 Class Hours, 2 Laboratory Hours**

## **CH 105 Chemistry**

**3 Credits**

Fundamental concepts of organic chemistry, including carbohydrates, lipids and proteins and their role in metabolism. Same material in class as in CH 102 Chemistry except that this course has no laboratory hours.

**3 Class Hours**

**Prerequisite:** CH 101 Chemistry

## **CH 110 Chemistry**

**4 Credits**

Fundamental principles and laws underlying chemical action, their integration with the theories of atomic structure and chemical bonding, and correlation with the position of the elements on the periodic chart. Topics discussed are atomic structure, the periodic chart, chemical bonding, water and the states of matter.

**3 Class Hours, 3 Laboratory Hours**

## **CH 111 Chemistry**

**4 Credits**

Continuation of CH 110 Chemistry, including solutions, oxidation-reduction, ionization and electrolysis, acids, bases and salts, chemical equilibrium and coordination compounds.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CH 110 Chemistry**

## **CH 112 Chemistry**

**4 Credits**

A theoretical discussion of ionization constants, solubility products and equilibrium constants as influencing qualitative analysis. Laboratory work includes the detection and identification of the more important cations and anions including work on the analysis of mixtures.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CH 111 Chemistry**

## **CH 113 Chemistry**

**3 Credits**

An introductory course to prepare the student for the mathematical operations encountered in more advanced chemistry courses.

**3 Class Hours**

**Prerequisite: CH 111 Chemistry**

## **CH 122 Chemistry**

**4 Credits**

Continuation of CH 101 Chemistry involving specific applications of the concepts studied in that course.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: CH 101 Chemistry and MA 101 Mathematics or equivalent**

## **CH 123 Chemistry**

**4 Credits**

Continuation of CH 122 Chemistry and includes theory and laboratory in volumetric and gravimetric analysis.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: CH 122 Chemistry and MA 102 Mathematics**

## **CH 131 Chemistry**

**5 Credits**

Ionization constants, solubility products and equilibrium constants as they influence qualitative analysis. Laboratory work includes the detection and identification of the more important cations and anions, including work on the analysis of mixtures. Emphasis on various tests—flame coloration, blowpipe, bead, open and closed tube, solubility and confirmation. Use of hand spectroscope and light microscope.

**3 Class Hours, 4 Laboratory Hours**

**Prerequisite: CH 111 Chemistry**

## **CH 180 Chemistry**

**4 Credits**

For non-technical students, explaining basic laws, principles and theories. Topics include structure of matter, chemical behavior, states of matter, solutions and elements of organic chemistry. The laboratory experiments are illustrated by instructor demonstration rather than practice by the student.

**3 Class Hours, 2 Laboratory Hours**

## **CH 224 Organic Chemistry**

**4 Credits**

An integrated general presentation of theory, nomenclature, preparation, properties, reactions, occurrence and uses of important aliphatic and aromatic organic compounds.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CH 123 Chemistry**

## **CH 225 Organic Chemistry**

**3 Credits**

Continuation of CH 224 Organic Chemistry and includes such topics as proteins, lipids and carbohydrates, alkaloids, steroids, vitamins and enzymes.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite: CH 224 Organic Chemistry**



## **CH 226 Instrumental Analysis**

**4 Credits**

Theory and laboratory instruction in electrochemical methods of analysis including potentiometry, polarography, coulometry, conductimetry and radiochemistry.

**2 Class Hours, 6 Laboratory Hours**

**Prerequisites: CH 123 Chemistry and CH 224 Organic Chemistry**

## **CH 227 Instrumental Analysis**

**4 Credits**

Theory and laboratory instruction in chromatography (gas, thin layer and column), spectrophotometry (emission and absorption).

**2 Class Hours, 6 Laboratory Hours**

**Prerequisite: CH 226 Instrumental Analysis**

## **CH 241 Quantitative Chemistry**

**7 Credits**

Application of physical and chemical theory to the more important gravimetric and volumetric procedures. Analytical balance, errors, precision, significant figures and preparation of samples for analysis. Laboratory work in the application of various methods of quantitative analysis including gravimetry, neutralimetry, precipitometry, redoximetry and compleximetry.

**4 Class Hours, 9 Laboratory Hours**

**Prerequisites: CH 131 Chemistry and CH 113 Chemistry**

## **CH 242 Quantitative Chemistry**

**5 Credits**

Instrumental methods of analytical chemistry, primarily electrochemical methods. Laboratory experiments in potentiometry, polarography, coulometry, conductimetry, radiochemistry and electrogravimetry. Related technical report writing.

**3 Class Hours, 6 Laboratory Hours**

**Prerequisite: CH 241 Quantitative Chemistry**



## **CH 243 Instrumental Methods of Analysis 5 Credits**

Instrumental methods of analytical chemistry, primarily optical methods. Laboratory work in visible, ultraviolet and infrared spectrophotometry, chromatography—column, paper thin layer and gas. Chemical microscopy and emission spectroscopy.

**3 Class Hours, 6 Laboratory Hours**

**Prerequisite: CH 242 Quantitative Chemistry**

## **CH 251 Organic Chemistry 5 Credits**

The important classes of carbon compounds, such as alcohols, alkyl and aryl halides, ethers and carboxylic acids in terms of modern structural theory. Properties are linked to structure by a study of reaction rates, equilibrium, transition state and activation energy, reaction mechanisms, resonance and orbital theories.

**3 Class Hours, 6 Laboratory Hours**

**Prerequisite: CH 131 Chemistry or CH 112 Chemistry**

## **CH 252 Organic Chemistry 5 Credits**

A continuation of the study of additional classes of organic compounds followed by a study of tautomerism, stereochemistry, carbohydrates, proteins and dyes in terms of modern structural theory. Properties are linked to structure by a study of reaction rates, equilibrium, transition state and activation energy, reaction mechanisms, resonance and orbital theories.

**3 Class Hours, 6 Laboratory Hours**

**Prerequisite: CH 251 Organic Chemistry**

## **CH 253 Organic Chemistry 5 Credits**

The identification of organic compounds by correlation of fundamental properties, and the behavior of organic compounds with their structures. Preparation and properties of polymers.

**3 Class Hours, 6 Laboratory Hours**

**Prerequisite: CH 252 Organic Chemistry**

## **CH 261 Chemical Engineering Stoichiometry 3 Credits**

A first course in chemical engineering designed to give the student background in the application of chemistry, physics and mathematics to the solution of engineering problems. Special emphasis is placed on the solution of problems dealing with material and energy balances.

**3 Class Hours**

**Prerequisites: CH 113 Chemistry and MA 140 Algebra and Trigonometry**

## **CH 262 Chemical Engineering Unit Operations 4 Credits**

The lecture portion involves a theoretical treatment of the basic unit operations of chemical engineering, including fluid flow, heat transfer, evaporation. Laboratory experimentation is conducted in the above areas using pilot plant size equipment, and formal reports utilizing the students' data are required.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CH 261 Chemical Engineering Stoichiometry**

## **CH 263 Chemical Engineering Unit Operations 5 Credits**

The lecture portion involves a theoretical treatment of the basic unit operations of chemical engineering, including evaporation, distillation, drying, gas absorption and filtration. Laboratory experimentation is conducted in the above areas using pilot plant size equipment, and formal reports utilizing the students' data are required.

**3 Class Hours, 6 Laboratory Hours**

**Prerequisite: CH 262 Chemical Engineering Unit Operations**

## **CH 265 Chemical Engineering Stoichiometry 3 Credits**

A continuation of CH 261 Chemical Engineering Stoichiometry, covering the solution of more advanced material and energy problems.

**3 Class Hours**

**Prerequisite: CH 261 Chemical Engineering Stoichiometry**

## **CH 266 Survey of Transfer Operations 4 Credits**

Basic mechanisms of heat, mass and momentum transfer, as applied to chemical engineering. Laboratory work involves demonstration and measurement of the above phenomena.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CH 265 Chemical Engineering Stoichiometry**

## **CIVIL TECHNOLOGY**

### **CT 110 Architectural Drawing 1 Credit**

Introduction to residential architecture including preliminary studies, materials and methods of construction, space analysis and plan development.

**3 Laboratory Hours**

**Prerequisite: MT 110 Engineering Drawing**

### **CT 119 Plain Concrete 3 Credits**

A study of cements, aggregates and plain concrete, including the testing of cements and aggregates, the design, mixing, testing, placing, curing control and inspection of plain concrete. ASTM and AASHTO standards.

**2 Class Hours, 3 Laboratory Hours**

### **CT 131 Heating, Ventilating and Air Conditioning 3 Credits**

Fundamentals of heating, ventilating and air conditioning. These include the theory, design, layout and installation of steam, hot water, warm air heating systems and air conditioning systems.

**3 Class Hours**

**Prerequisites: PH 141 Physics and MT 155 Applied Mechanics**

### **CT 140 Surveying 5 Credits**

Plane surveying including distance measurement, note keeping, compass surveying, leveling, angle measurement, care and use of instruments, stadia, plane table topography, traversing, coordinates, area computation, mapping.

**3 Class Hours, 6 Laboratory Hours**

**Prerequisite: MA 140 Algebra and Trigonometry**

### **CT 141 Surveying 4 Credits**

Continuation of CT 140 Surveying, including observation of meridian, triangulation, land surveys, horizontal and vertical control, hydrographic surveying, photogrammetry.

**2 Class Hours, 6 Laboratory Hours**

**Prerequisite: CT 140 Surveying**

### **CT 153 Strength of Materials 4 Credits**

Study of stress and strain, elasticity, torsion, welded joints, riveted joints, beam stresses, centroids, moments of inertia, shear and moment diagrams. Laboratory work includes strain gauges, tests on wood and metals conducted in accordance with ASTM and AASHTO standards.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: MT 155 Applied Mechanics and MA 141 Analytic Geometry and Calculus**

### **CT 211 Architectural Drawing 1 Credit**

Development of working drawings for use in residential type construction, including plot plans, floor plans, elevations, details, mechanical and electrical layouts.

**3 Laboratory Hours**

**Prerequisite: CT 110 Architectural Drawing**



## **CT 212 Architectural Drawing 1 Credit**

Sketching, perspective drawing and an introduction to the planning of commercial-industrial type buildings.

**3 Laboratory Hours**

**Prerequisite: CT 211 Architectural Drawing**

## **CT 220 Reinforced Concrete Design 4 Credits**

Fundamental behavior of reinforced concrete, both elastic and inelastic. Design, analysis, and detailing of rectangular beams, T-beams, beams reinforced for compression, columns and footings. Major emphasis is on ultimate strength design methods. An integrated design and detailing project is included.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CT 254 Strength of Materials**

## **CT 221 Structural Steel Design 4 Credits**

Fundamental theory and principles necessary for design of simple steel structures. Design, investigation and detailing of beams, columns, tension and compression members and their connections, composite beams. An integrated design and detailing project is included.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CT 220 Reinforced Concrete Design**

## **CT 230 Building Design 4 Credits**

Application of architectural design principles to commercial-industrial type buildings. A term project is included.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CT 212 Architectural Drawing**

## **CT 250 Estimating and Construction Planning 4 Credits**

A systematic approach to determining the cost of a building project combined with the planning and scheduling of operations. An introduction to critical path method.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CT 212 Architectural Drawing**

## **CT 254 Strength of Materials 3 Credits**

A continuation of CT 153 Strength of Materials including the design of beams and columns; bending, shearing and combined stresses; deflection of determinate and indeterminate members, energy method and selected topics.

**3 Class Hours**

**Prerequisite: CT 153 Strength of Materials**

## **CT 270 Soil Mechanics 4 Credits**

Origin and nature of soil, soil density, sampling, soil water, flow nets and seepage forces. Classification, frost action, stabilization, stress, consolidation, settlement, shearing strength, stability, embankments, dams, retaining walls, piles and underground conduits. The laboratory covers ASTM and AASHTO specifications used in classifying and predicting behavior of soils.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CT 153 Strength of Materials**

## **CT 271 Environmental Sanitation 4 Credits**

Environmental sanitation including communicable diseases, water and water treatment, sewerage and sewage treatment, air pollution and refuse sanitation. The laboratory includes microbiology, trips to treatment plants, and design problems in distribution and collection systems of water and sewage.

**3 Class Hours, 3 Laboratory Hours**

## **CT 283 Route Surveying and Highway Design 4 Credits**

Horizontal and vertical curves, spirals, sight distances, earthwork and computer applications. Term project includes plan, profile, intersections, cross sections, areas, volumes, superelevation, mass diagram, estimate, drainage.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: CT 141 Surveying**

## **DENTAL HYGIENE**

### **DH 100 Dental Hygiene and Ethics 2 Credits**

History of dental hygiene. Ethical practice and proper oral hygiene technique.

**2 Class Hours**

### **DH 101 Dental Manikin Practice 3 Credits**

Removal of simulated deposits and accretions on the teeth of manikins by use of dental instruments. Proper scaling and polishing techniques, toothbrushing and general mouth cleanliness are stressed.

**1 Class Hour, 4 Laboratory Hours**

**Prerequisites: DH 100 Dental Hygiene and Ethics and DH 140 Dental Anatomy and BI 171 Anatomy and Physiology**

### **DH 102 Dental Manikin Practice 3 Credits**

Continuation of DH 101.

**1 Class Hour, 4 Laboratory Hours**

**Prerequisites: DH 101 Dental Manikin Practice and DH 141 Dental Anatomy and BI 172 Anatomy and Physiology**

### **DH 121 Hygiene 2 Credits**

The various factors (physical, social, psychological) which affect the total health status of the individual, and the effective application of sound health principles in solving health problems.

**2 Class Hours**

### **DH 140 Dental Anatomy 3 Credits**

Lecture and laboratory study of the gross anatomy of the maxilla, mandible, individual teeth. The significance of the foregoing to dental physiology and the rendering of a dental prophylaxis.

**2 Class Hours, 2 Laboratory Hours**

### **DH 141 Dental Anatomy 3 Credits**

Continuation of DH 140.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: DH 140 Dental Anatomy**

### **DH 153 Radiology 3 Credits**

Proper use of the X-ray machine and accessories, exposure, development and mounting of dental films, procedures to safeguard the patient and operator from hazards of radiation, and the understanding of the facets of the use of X-ray in clinical practice of dentistry.

**3 Class Hours**

**Prerequisites: DH 101 Dental Manikin Practice and DH 141 Dental Anatomy and BI 172 Anatomy and Physiology**

### **DH 158 Dental Office Practice 3 Credits**

General dental office procedures, psychology of patient relations, dental assisting and operating room procedure, and the importance to the dental hygienist of being a member of the dental health team.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: BU 161 Typewriting or equivalent**

## **DH 204 Clinical Dental Hygiene 4 Credits**

Dental prophylaxes performed on patients, mouth inspection, topical application of fluorides, home care instruction to the patient. Practice in dental assisting, sterilizing techniques. Taking, processing and mounting radiographs. Classroom instruction in dental health education to elementary and secondary school students.

**12 Laboratory Hours**

**Prerequisites: All Dental Hygiene and Biology Courses in Terms 1, 2 & 3**

## **DH 205 Clinical Dental Hygiene 4 Credits**

Continuation of DH 204 Clinical Dental Hygiene.

**12 Laboratory Hours**

**Prerequisite: DH 204 Clinical Dental Hygiene**

## **DH 206 Clinical Dental Hygiene 4 Credits**

Continuation of DH 205 Clinical Dental Hygiene.

**12 Laboratory Hours**

**Prerequisite: DH 205 Clinical Dental Hygiene**

## **DH 244 Preventive Dentistry 3 Credits**

Preventive methods of maintaining the health of the mouth and control of dental caries. Detailed studies of the latest methods of caries control through laboratory tests, diet and fluoridation. Study of teeth not in normal occlusion, classification and probable factors causing orthodontic conditions. Introduction to abnormal oral conditions found in children, with possible methods of treatment or correction.

**3 Class Hours**

**Prerequisites: BI 175 Histology & Embryology and**

**DH 141 Dental Anatomy and BI 159 Microbiology**

## **DH 254 General Pathology 2 Credits**

A broad picture of the disease process through a study of common general diseases, their causes, results, treatment. Emphasis on the principles of inflammation, healing and repair.

**2 Class Hours**

**Prerequisites: BI 159 Microbiology and BI 175 Histology & Embryology**

**and BI 172 Gross Anatomy & Physiology**

## **DH 255 Oral Pathology 2 Credits**

Oral diseases, their causes, recognition and treatment, with particular emphasis on the application of the principles covered in DH 254 General Pathology.

**2 Class Hours**

**Prerequisite: DH 254 General Pathology**

## **DH 260 Dental Laboratory Practice 3 Credits**

An introduction to the restorative phase of dentistry. Dental laboratory procedures by lectures, demonstrations and actual processing of laboratory projects by students. History, property and use of various dental laboratory materials.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: DH 141 Dental Anatomy**

## **DH 261 Nutrition 3 Credits**

Basic nutrition, essential nutrients, requirements and recommended allowances. The role of dietary intake in an individual's dental health.

**3 Class Hours**

**Prerequisites: CH 102 Chemistry and BI 172 Anatomy and Physiology**

**and BI 175 Histology and Embryology**



## **DH 264 School Organization**

**3 Credits**

The elementary and secondary school program in terms of organization, administration, finance, personnel, school laws and regulations, teacher organization and their interrelationships and implications.

**3 Class Hours**

## **DH 267 Anesthesia**

**2 Credits**

Principles of general and local anesthetics and patient management.

**2 Class Hours**

**Prerequisites:** All preceding DH and BI courses in Terms 1, 2, 3 and 4

## **DH 268 Special Dental Practice**

**3 Credits**

Various specialty practices in dentistry: periodontia, prosthetics, orthodontics, endodontics, exodontics, oral surgery and maxio-facial surgery. Nature, procedure, differences in types of practices and the role of the dental hygienist in each practice.

**3 Class Hours**

**Prerequisites:** All preceding DH and BI courses in Terms 1, 2, 3, 4 and 5

## **DH 283 Dental Health Education**

**3 Credits**

The role of dental health in society. Review of preventive dentistry measures and their use in individual and group instruction. Study and preparation of instructional aids and source materials for dental health education.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisites:** All preceding DH and BI courses in Terms 1, 2 and 3

## **DH 285 Health Services in Schools**

**3 Credits**

The place and function of health services in public education. Laws and regulations which apply to health services in schools. Factors which influence the health status of the child in the school environment. The coordination of school and community health services.

**3 Class Hours**

**Prerequisite:** DH 283 Dental Health Education



# **ELECTRICAL TECHNOLOGY**

## **ET 101 Manufacturing Processes**

**2 Credits**

Manufacturing processes related to the electrical industry to provide a basic knowledge in bench operations and tool operations involving the use of the lathe, drill press, vertical end mill, band saw, engraving machine and power hacksaw. Practice and study of oxyacetylene and arc welding.

**1 Class Hour, 3 Laboratory Hours**

## **ET 102 Electrical Construction and Maintenance**

**2 Credits**

General trade practices to promote acquisition of basic manipulative skills. Installation and maintenance of electrical equipment. Different types of wiring systems used in industry and homes; trouble-shooting and repair of electrical equipment. Study and practice of fabrication methods used in the electrical industry, National Electrical Code rules and shop safety practices.

**1 Class Hour, 3 Laboratory Hours**

**Prerequisite: ET 101 Manufacturing Processes or equivalent**

## **ET 103 Electrical Construction and Maintenance**

**1 Credit**

Continuation of ET 102 Electrical Construction and Maintenance.

**3 Laboratory Hours**

## **ET 104 Industrial Safety and First Aid**

**2 Credits**

Accident sources and causes, safety as a responsibility of workers and management, job safety analysis. Education, training, supervision and organization for safety. Accident reports and records. Principles of first aid.

**2 Class Hours**

## **ET 110 Physics (Fundamentals for Electricity)**

**5 Credits**

Dimensional, vector and graphical analysis of basic physical concepts, establishing a foundation for the study of electrical principles.

**4 Class Hours, 3 Laboratory Hours**

## **ET 111 Physics (Electricity and Magnetism)**

**5 Credits**

Parameters and components of electrical circuits founded upon electric and magnetic field concepts.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisite: ET 110 Physics**

## **ET 112 Semiconductor Fundamentals**

**4 Credits**

Investigation of electrical phenomena within solids, based upon extra-nuclear atomic structure and concepts of solid state physics.

**4 Class Hours**

**Prerequisite: ET 110 Physics**

## **ET 120 Electrical Circuits**

**5 Credits**

Application of circuit parameters to single and polyphase circuits, involving the use of vector algebra and elementary circuit laws.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisite: ET 111 Physics**

## **ET 127 Electricity**

**4 Credits**

The beginning of a two-term sequential course of applied electrical concepts emphasizing DC and AC circuitry and an introduction to electrical machinery.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: PH 142 Physics**

## **ET 128 Electricity**

**4 Credits**

A continuation of ET 127 Electricity.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: ET 127 Electricity**

## **ET 129 Electronics**

**4 Credits**

An applied electronics course with related laboratory experiments. An introduction to the theory and operation of electronic components, with emphasis on their applications.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: ET 128 Electricity**

## **ET 130 Engineering Drawing**

**1 Credit**

Techniques of geometric construction, principles of orthographic projection, sections, theory and application of dimensioning and tolerancing. Lettering practice and development of technical sketching.

**3 Laboratory Hours**

## **ET 131 Engineering Drawing**

**1 Credit**

Discussions of shop processes and procedures to facilitate the understanding of drafting problems. Types and representation of threads, bolts, nuts, keys, keyways and locking devices. Preparation of assembly drawings. Applications of auxiliary views and of axonometric projection. Methods of reproducing drawings.

**3 Laboratory Hours**

**Prerequisite: ET 130 Engineering Drawing**

## **ET 132 Engineering Drawing**

**1 Credit**

Solutions of mathematical problems using graphical methods. Development of scale layout and construction of various common forms of nomographs. Geometric derivations of various types of mathematical relationships.

**3 Laboratory Hours**

**Prerequisite: ET 131 Engineering Drawing**

## **ET 135 Electricity**

**3 Credits**

The beginning of a two-term sequential course of applied electrical concepts emphasizing DC and AC circuitry and containing an introduction to the DC electrical machinery. Related laboratory experiments are included which emphasize concepts as applied in the building construction industry.

**3 Class Hours, 2 Laboratory Hours**

**Prerequisite: MA 140 Algebra and Trigonometry**

## **ET 136 Electricity**

**3 Credits**

A continuation of ET 135 Electricity with laboratory emphasis on applications of AC electrical concepts.

**3 Class Hours, 2 Laboratory Hours**

**Prerequisite: ET 135 Electricity**

## **ET 223 Network Analysis**

**4 Credits**

Analysis of complex electrical networks by the application of Kirchhoff's Laws, Thevenin's theorem, Norton's theorem, superposition and vector loci methods.

**4 Class Hours**

**Prerequisite: ET 120 Electrical Circuits**

## **ET 230 Electrical Design**

**1 Credit**

Application of electrical drafting principles to the planning of power layout and lighting design. Manufacturers' catalogs, charts, and the National Electrical Code form essential reference material. Lists of materials and schedules are prepared as parts of each project.

**3 Laboratory Hours**

**Prerequisite: ET 132 Engineering Drawing**





### **ET 231 Electrical Design**

**1 Credit**

Electrical drafting in the field of electronics. A study of symbols, conventions, layout procedures and circuit sequence that comprises an electronic circuit. Individual student projects.

**3 Laboratory Hours**

**Prerequisite: ET 230 Electrical Design**

### **ET 232 Electrical Design**

**1 Credit**

Circuit symbols and types of diagrams used in control mechanisms. Discussions of the principles of control devices, their construction and operation. Individual student projects.

**3 Laboratory Hours**

**Prerequisite: ET 231 Electrical Design**

### **ET 240 Electrical Machines**

**5 Credits**

Theory, operation and application of DC machinery. Introduction to single and polyphase transformers, their design, characteristics and applications. Use of vector diagrams. Class work related to laboratory experience.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisite: ET 120 Electrical Circuits**

### **ET 241 Electrical Machines**

**5 Credits**

Continuation of the work on transformers with attention to special connectors. Alternators, synchronous motors, induction motors. Theory of design, construction, characteristics and applications. Laboratory work dealing with several methods of evaluation. Special methods of predicting characteristics, including vector and circle diagram methods.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisite: ET 240 Electrical Machines**

## **ET 242 Automatic Controls**

**5 Credits**

Theory, operation and application of industrial equipment used in the automatic control of industrial motors and generators. Examination, operation and trouble-shooting of these control devices. Introduction to the principles of servo-mechanisms.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisites:** ET 241 Electrical Machines and ET 253 Electronics

## **ET 250 Electronics**

**5 Credits**

Introduction to electronic building blocks. Characteristics of vacuum, gas and semiconductor devices. Multi-element and special types of active devices.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisites:** MA 141 Analytic Geometry and Calculus  
and ET 112 Semiconductor Fundamentals

## **ET 251 Electronics**

**5 Credits**

Use of electronic building blocks. Vacuum, gas and semiconductor devices in functioning circuitry. Prediction and analysis of performance.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisite:** ET 250 Electronics

## **ET 252 Electronics**

**5 Credits**

Behavior of large signal devices, graphical analysis, application of feedback, sinusoidal oscillators.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisites:** MA 142 Analytic Geometry and Calculus  
and ET 251 Electronics

## **ET 253 Electronics**

**5 Credits**

Cascaded circuits. Behavior and applications of non-linear circuits, circuits with heavy feedback, wave shaping, non-sinusoidal oscillators, counters, functional devices.

**4 Class Hours, 3 Laboratory Hours**

**Prerequisite:** ET 252 Electronics

## **ET 257 Introduction to System Logic**

**3 Credits**

Logical analysis—application to analog, digital and non-computer areas. Mathematical methods for analysis of computer logic and computer-type problems. Study of building blocks, sub-system and system operations. Periodical laboratory exercises and demonstrations.

**3 Class Hours**

**Prerequisite** MA 142 Analytic Geometry and Calculus  
(Non-Electrical Technology students need faculty approval)

## **ET 261 Industrial Organization**

**3 Credits**

Principles, functions and coordination of industrial organization. Management, costs, product development, marketing, methods analysis, work measurement, plant layout, material handling, production and inventory control.

**3 Class Hours**

## **ET 262 Industrial Relations**

**3 Credits**

Analysis and study of the principles, concepts and techniques of industrial relations. Emphasis on the personnel function as an important area of industrial relations. Guidance and counsel to students in finding and selecting suitable employment as well as long-range vocational goals in Electrical Technology.

**3 Class Hours**

## **ET 263 Engineering Economics**

**3 Credits**

A fundamental course in engineering economics for Electrical Technology students. Fundamental aspects of component selection and purchase, equipment maintenance and comparison of various plant operations. Engineering depreciation calculation, minimum cost analysis, estimates in economy analysis and classifications of engineering cost.

**3 Class Hours**

## **ENVIRONMENTAL HEALTH TECHNOLOGY**

### **EH 101 Environmental Health I**

**2 Credits**

History, development, and philosophy of environmental health with emphasis on its social foundations.

**2 Class Hours**

### **EH 102 Environmental Health II**

**3 Credits**

Principles of environmental disease control and their application to the environment. Field trips to various facilities to observe control principles in actual use.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite: EH 101 Environmental Health I**

### **EH 103 Milk Sanitation**

**4 Credits**

Application of sanitary principles to the production, processing and distribution of milk and milk products. Milk codes and inspection procedures. Field trips to farms and processing plants.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: EH 102 Environmental Health II**

### **EH 201 Atmospheric Pollution**

**5 Credits**

Air pollution in relation to public health. Sources and classification of pollutants, pollution meteorology, sampling and measuring techniques, principles and methods employed in control.

**3 Class Hours, 6 Laboratory Hours**

### **EH 202 Environmental Sanitation**

**4 Credits**

Classroom and field study of various community and occupational sanitation problems including refuse disposal, swimming pool and bathing beach operation, rodent control, industrial sanitation, occupational health, housing.

**3 Class Hours, 3 Laboratory Hours**

### **EH 203 Food Sanitation**

**3 Credits**

Application of sanitary principles to the processing, storage, distribution and serving of foods including meats, poultry and sea food, canned and frozen foods, bakery products, beverages.

**2 Class Hours, 3 Laboratory Hours**

### **EH 204 Water Supply and Pollution Control I**

**4 Credits**

An intensive study of water supply, including water quality and composition, development and protection of ground and surface water supplies and water treatment processes. Basic hydraulic principles including flow measurements and pumping. **Must be taken concurrently with BI 250 Microbiology.**

**3 Class Hours, 3 Laboratory Hours**

### **EH 205 Water Supply and Pollution Control II**

**4 Credits**

Continuation of EH 204. Collection, transportation, and disposal of liquid wastes including composition of sanitary and industrial wastes, methods of treatment, design of subsurface disposal systems.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: BI 254 Microbiology**



## **EH 206 Radiological Health**

**3 Credits**

X-ray generating equipment, radiographic procedures, radiation protection principles, observation of radiographic technique and practice in inspection procedures. **Must be taken concurrently with PH 110 Physics.**

**2 Class Hours, 3 Laboratory Hours**

## **EH 207 Environmental Health Administration**

**2 Credits**

Programs and agencies involved with environmental health including organization of health departments, personnel management, public relations, preparation of forms and reports.

**1 Class Hour, 2 Laboratory Hours**

## **LIBERAL ARTS**

### **LA 101, 102, 103 Beginning Spanish**

**4 Credits**

Basic principles of grammar and syntax. Emphasis on oral practice in classroom, supplemented by work in audio-lingual laboratory. Reading of graded literary texts.

**4 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 101 Spanish for LA 102**

**LA 102 Spanish for LA 103**

### **LA 110, 111, 112 Beginning French**

**4 Credits**

Basic principles of grammar and syntax. Emphasis on oral practice in classroom, supplemented by work in audio-lingual laboratory. Reading of graded literary texts.

**4 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 110 French for LA 111**

**LA 111 French for LA 112**

### **LA 119, 120, 121 Beginning German**

**4 Credits**

Basic principles of grammar and syntax. Emphasis on oral practice in classroom, supplemented by work in audio-lingual laboratory. Reading of graded literary texts.

**4 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 119 German for LA 120**

**LA 120 German for LA 121**

### **LA 130 English Composition**

**3 Credits**

Introduction to the nature and history of language. Instruction and practice in the writing of short, expository compositions. The tools and techniques of the research paper.

**3 Class Hours**

### **LA 131 English Composition**

**3 Credits**

Continued expository theme writing. Instruction and practice in argumentation, description and narration. Study of tone and other aspects of style through analysis of selected essays.

**3 Class Hours**

**Prerequisite: LA 130 English Composition**

### **LA 132 English Composition**

**3 Credits**

Critical and evaluative writing based on ideas suggested by the study of selected pieces of literature.

**3 Class Hours**

**Prerequisite: LA 131 English Composition**

**LA 145 Development of Western Civilization 3 Credits**

The development of man from the dawn of history, through the classical civilizations of Greece and Rome, to the Middle Ages and the Renaissance.

**3 Class Hours**

**LA 146 Development of Western Civilization 3 Credits**

The Reformation, the emergence of modern Europe, humanism, exploration and invention, the Age of Enlightenment, colonialism and the Age of Revolutions.

**3 Class Hours**

**LA 147 Development of Western Civilization 3 Credits**

The period from the close of the Napoleonic Period to the present: development of nationalism, the beginning of liberalism, the growth of industrialism, the two World Wars and present-day tensions. Social and cultural trends of the period.

**3 Class Hours**

**LA 193 Philosophy 3 Credits**

Methodology, the principles of deductive and inductive logic, epistemology.

**3 Class Hours**

**LA 194 Philosophy 3 Credits**

The various systems of thought, including idealism, rationalism, theism, empiricism, positivism, pragmatism, scepticism, existentialism.

**3 Class Hours**

**LA 195 Philosophy 3 Credits**

Ethics: moral values, rules of conduct and guides to action. Aesthetics: the science of beauty, the rules and principles of art.

**3 Class Hours**

**LA 204 Intermediate Spanish 3 Credits**

Reading and discussion of cultural and historical texts. Continuation of grammar, syntax and oral practice in classroom and audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 103 Beginning Spanish**

**LA 205 Intermediate Spanish 3 Credits**

Intensive and extensive reading of literary works of recognized authors. Continuation of grammar, syntax and oral practices in classroom and audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 204 Intermediate Spanish**

**LA 206 Intermediate Spanish 3 Credits**

Emphasis on composition, with continuation of grammar, syntax and oral practices in classroom and audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 205 Intermediate Spanish**

**LA 207 Spanish Conversation and Composition 3 Credits**

Intensive drill in today's spoken Spanish. Practice in writing in the language. Use of audio-lingual laboratory to supplement classroom work.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 206 Intermediate Spanish**

**LA 208 Introduction to Spanish Literature 3 Credits**

Lectures, readings and discussions of masterpieces of Spanish literature from *Poema de mio Cid* to the 18th century. Voluntary use of audio-lingual laboratory to hear recordings of Spanish masterpieces. **3 Class Hours**

**Prerequisite: LA 207 Spanish Conversation and Composition**

**LA 209 Introduction to Spanish Literature 3 Credits**

Further lectures, readings and discussions of representative Spanish works of the 18th, 19th and 20th centuries. Voluntary use of audio-lingual laboratory to hear recordings of Spanish masterpieces. **3 Class Hours**

**Prerequisite: LA 208 Introduction to Spanish Literature**

**LA 213 Intermediate French 3 Credits**

Reading and discussion of cultural and historical texts. Continuation of grammar, syntax and oral practice in classroom and audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 112 Beginning French**

**LA 214 Intermediate French 3 Credits**

Intensive and extensive reading of literary works of recognized authors. Continuation of grammar, syntax and oral practices in classroom and audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 213 Intermediate French**

**LA 215 Intermediate French 3 Credits**

Emphasis on composition, with continuation of grammar, syntax and oral practices in the classroom and audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 214 Intermediate French**

**LA 216 French Conversation and Composition 3 Credits**

Practice in oral and written French. Special attention to French phonetics and modern French idiom. Use of audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 215 Intermediate French**

**LA 217 Introduction to French Literature 3 Credits**

Reading, lectures and reports on masterpieces of French literature with cultural and historical implications, from *La Chanson de Roland* through the 18th century. Voluntary use of audio-lingual laboratory to hear recordings of masterpieces.

**3 Class Hours**

**Prerequisite: LA 216 French Conversation and Composition**

**LA 218 Introduction to French Literature 3 Credits**

Further reading, lectures, reports on masterpieces of French literature with their implications, from the 18th century to modern times. Voluntary use of audio-lingual laboratory to hear recordings of masterpieces. **3 Class Hours**

**Prerequisite: LA 217 Introduction to French Literature**

**LA 222 Intermediate German 3 Credits**

Emphasis on grammar with difficult problems of syntax and translation. Conversation with audio-lingual laboratory work. **3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 121 Beginning German**



**LA 223 Intermediate German 3 Credits**

Further drill in grammar and composition. Conversation with audio-lingual laboratory work. Introduction to original texts of standard authors.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 222 Intermediate German**

**LA 224 Intermediate German 3 Credits**

Reading and discussion of original texts of standard authors with cultural and historical implications. Use of audio-lingual laboratory to hear recordings of masterpieces.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 223 Intermediate German**

**LA 225 German Conversation and Composition 3 Credits**

Practice in oral and written German, exercises in dictation, letter writing and composition. Special attention to modern German idiom. Use of audio-lingual laboratory.

**3 Class Hours, 1 Laboratory Hour**

**Prerequisite: LA 224 Intermediate German**

**LA 226 Introduction to German Literature 3 Credits**

Readings and lectures in German literature from the Old High German period to the 18th century. Lectures and reports. Voluntary use of audio-lingual laboratory to hear recordings of masterpieces.

**3 Class Hours**

**Prerequisite: LA 225 German Conversation and Composition**

**LA 227 Introduction to German Literature 3 Credits**

Further readings and lectures in German literature with emphasis on great masters from the 18th century to modern times. Voluntary use of audio-lingual laboratory to hear recordings of masterpieces.

**3 Class Hours**

**Prerequisite: LA 226 Introduction to German Literature**

**LA 233 English Literature 3 Credits**

The history and development of the English novel as a literary form. Reading and discussion of representative English novels from Fielding's *Joseph Andrews* to Conrad's *Lord Jim* with attention to both themes and structure.

**3 Class Hours**

**Prerequisite: LA 132 English Composition**

**LA 234 English Literature 3 Credits**

English dramatic literature from the Middle Ages to 1900. Emphasis on dramatic techniques and the historical, social and intellectual climate of the time.

**3 Class Hours**

**LA 235 English Literature 3 Credits**

English non-dramatic poetry from Chaucer to Eliot. Metrics and versification. Analysis of sounds, words, symbols, images, metaphors and tone in selected poems of various forms and types.

**3 Class Hours**

**LA 236 Literature of the Western World:  
Classical and Christian Backgrounds 3 Credits**

Greek, Roman and medieval Christian writing and its influence on Western culture.

**3 Class Hours**



**LA 237 Literature of the Western World: Fiction** **3 Credits**  
Representative works from the Renaissance to the present. **3 Class Hours**

**LA 238 Literature of the Western World: Dramatic Literature** **3 Credits**

Representative selections dating from the Renaissance with an emphasis on the period from Realism to the Theatre of the Absurd. **3 Class Hours**

**LA 248 History of Latin America** **3 Credits**

Pre-Columbian Latin America, the Spanish and Portuguese conquests and the Colonial Period. **3 Class Hours**

**LA 249 History of Latin America** **3 Credits**

Latin America's wars of independence and the economic and cultural development of the nineteenth century. **3 Class Hours**

**LA 250 History of Latin America** **3 Credits**

The major Latin American nations in the 20th century in terms of political, economic and social institutions and problems. **3 Class Hours**

**LA 255 Economics****3 Credits**

Introduction to the principles and problems of macro-economics. Economic reasoning and the American economic system, national income determination, business fluctuations, fiscal policy and the public debt.

**3 Class Hours****LA 256 Economics****3 Credits**

Continuation of macro-economics. Money and banking, monetary policy, economic stability and growth. Introduction to the principles and problems of micro-economics. Theory of prices and allocations of resources. Theory of the firm from competition to monopoly and connecting government policy.

**3 Class Hours****Prerequisite: LA 255 Economics****LA 257 Economics****3 Credits**

Distribution theory, rents, interest, profits. General equilibrium theory, current economic problems, international economics, the underdeveloped countries, comparative economic systems.

**3 Class Hours****Prerequisite: LA 256 Economics****LA 280 Sociology****3 Credits**

Sociological facts and principles dealing with the scientific study of human relationships. Emphasis on analysis and study of culture and human society, socialization, groups and group structures.

**3 Class Hours****LA 281 Sociology****3 Credits**

Stratification, collective behavior patterns and the various social institutions including associations, the family, and education. The application of sociological principles relating to the agents of social change.

**3 Class Hours****Prerequisite: LA 280 Sociology****LA 282 Sociology****3 Credits**

The structure of the aggregates of population, minority groupings, crime and delinquency, and major changes in technology, urbanism and political structures as they relate to man.

**3 Class Hours****Prerequisite: LA 281 Sociology****LA 286 Psychology****3 Credits**

Description and growth of psychology as a science, with special reference to theories, systems and methodology. Structure and functions of the brain and neural system, nature and measurement of individual differences, intelligence and its appraisal.

**3 Class Hours****LA 287 Psychology****3 Credits**

The bases and functions of sensation, perception, learning, thinking, communication and language. The growth and development of the child from conception to adolescence studied in relation to these entities.

**3 Class Hours****Prerequisite: LA 286 Psychology****LA 288 Psychology****3 Credits**

The process of motivation, origins and modifications of feeling and emotion, conflict and adjustment, normal and abnormal personality, social behavior, psychology of working situations.

**3 Class Hours****Prerequisite: LA 287 Psychology**



**LA 801 English****3 Credits**

Introduction to the nature and history of language. Semantics. Levels of usage. The construction of effective sentences and paragraphs. Critical reading of related essays. (Formerly GE 101.)

**3 Class Hours****LA 802 English****3 Credits**

Instruction and practice in the different types of writing including informative, evaluative and persuasive. Style, tone and diction, and their relationship to the writer's purpose. Critical reading of related essays. (Formerly GE 102.)

**3 Class Hours****Prerequisite: LA 801 English****LA 803 English****3 Credits**

The reading of prose selections dealing philosophically with man and his views of the world. Development of analytical reading, critical thinking and effective communication. (Formerly GE 103.)

**3 Class Hours****Prerequisite: LA 802 English****LA 804 Effective Speaking****3 Credits**

Speech communication through voice, words and action. Voice production, diction, platform presence. Organization of ideas. Practice in presenting speeches of different types. (Formerly GE 104.)

**3 Class Hours****LA 805 American Literature****3 Credits**

Fiction by important American writers of the last one hundred years. Emphasis on the novel and short story as art forms presenting significant ideas about the individual and society. (Formerly GE 105.)

**3 Class Hours****LA 810 Psychology****3 Credits**

Principles of psychology as they relate to the problems of human behavior and adjustment. Emphasis on growth and development, motivation, emotions, learning, individual differences, behavior disorders, personality and mental hygiene. (Formerly GE 110.)

**3 Class Hours****LA 820 Economics****3 Credits**

Economic facts and principles and their application to the American society. Production, consumption, forms of business ownership, national income, money and credit, banking, taxation, social security. Labor-management relations, business cycles, international trade, comparison of capitalism with other economic systems. (Formerly GE 120.)

**3 Class Hours****LA 830 Sociology****3 Credits**

Human groups, their activities, interrelationships, forces influencing them, and the influence of groups upon individuals and society. Emphasis on the foundations of society, our cultural environment, the family, education, religion, the growth of the individual within the social framework, the aged in modern society, social progress. (Formerly GE 130.)

**3 Class Hours****LA 840 Introduction to Philosophy****3 Credits**

The basic problems of philosophy, such as the nature of truth, origin and development of life, idealism, naturalism, ethics, freedom, the natural and the supernatural. (Formerly GE 140.)

**3 Class Hours**

## **LA 850 Political Science**

American government explored specifically through the Supreme Court, civil liberties, political parties, bureaucracy and generally through the development of the framing fathers' accomplishments. (Formerly GE 150.)

**3 Credits**  
**3 Class Hours**

## **LA 860 The Language of Music**

The essentials of musical knowledge needed to understand all forms of music through a study of rudiments, harmony, style, form and a survey of music literature. Emphasis upon developing good listening habits and an awareness of the art of music. (Formerly GE 160.)

**3 Credits**

**3 Class Hours**

## **LA 861 Music in the Baroque and Classic Era**

Music and musical styles of the 17th and 18th centuries. Emphasis upon the composers and their styles and the relationship of music to the social, political and other cultural reforms of the period. (Formerly GE 161.)

**3 Credits**

**3 Class Hours**

**Prerequisite: LA 860 The Language of Music or consent of instructor**

## **LA 862 19th Century Romantic Music**

Important musicians and musical styles of the Romantic Period. Emphasis upon the developments in piano literature, the symphony orchestra and opera. Listening to selected recordings and attendance at local concerts form an integral part of the discussions. (Formerly GE 162.)

**3 Credits**

**3 Class Hours**

**Prerequisite: LA 860 The Language of Music or consent of instructor**

## **LA 863 Introduction to Contemporary Music**

Important musicians and musical styles in the 20th century. Emphasis upon the trends and development of music in America as well as a study of leading European composers. (Formerly GE 163.)

**3 Credits**

**3 Class Hours**

**Prerequisite: LA 860 The Language of Music or consent of instructor**

# **MATHEMATICS**

## **MA 101 Mathematics**

Logical structure of algebra. Fundamental operations with integers and with fractions. Includes the number system, linear equations and applied problems, exponents and radicals, functions and graphs, quadratic equations.

**3 Credits**

**3 Class Hours**

## **MA 102 Mathematics**

A continuation of MA 101 Mathematics, including additional topics in trigonometry, together with the algebraic topics of inequalities, binomial theorem, probability. An introduction to the techniques of elementary statistics. Computation with slide rule, logarithms and scientific notation.

**3 Credits**

**3 Class Hours**

**Prerequisite: MA 101 Mathematics**

## **MA 104 Mathematics of Finance**

An application of mathematics to the business world. Fundamental mathematical theory is applied to typical situations in accounting, marketing, business administration, investments and life insurance problems.

**3 Credits**

**3 Class Hours**

**Prerequisite: MA 111 College Algebra**

## **MA 105 Mathematics**

Elementary statistics and probability—frequency distribution, mean and standard deviation, probability, random drawings, conditional probabilities, laws of chance, binomial distribution, acceptance sampling and testing hypotheses, samples from a finite population.

**3 Credits**

**3 Class Hours**

**Prerequisite: MA 101 Mathematics**

**MA 110 Fundamentals of Mathematics 3 Credits**

Mathematical logic, the number system, polynomials and the binomial theorem, algebraic fractions, exponents and radicals, sets and equations. **3 Class Hours**

**MA 111 Fundamentals of Mathematics 3 Credits**

Simultaneous equations, determinants and matrices, inequalities and algebraic, exponential and logarithmic functions. **3 Class Hours**

**Prerequisite: MA 110 Fundamentals of Mathematics**

**MA 112 Fundamentals of Mathematics 3 Credits**

Trigonometric functions, solutions of triangles, identities, vectors, radian measure, graphs, plane analytic geometry including the straight line and the cone sections, polar coordinates, permutations, combinations and probability.

**3 Class Hours**

**Prerequisite: MA 111 Fundamentals of Mathematics**

**MA 130 Modern Algebra 3 Credits**

Set theory, mappings, classification of the complex number system, integral domains, equivalence relations, equivalence classes, linear congruences and groups.

**3 Class Hours**

**MA 131 Modern Algebra 3 Credits**

Group theory, groupoids, quasi-groups, loops, semi-groups, cyclic groups, isomorphisms, cosets, invariant subgroups and quotient groups.

**3 Class Hours**

**Prerequisite: MA 130 Modern Algebra**

**MA 132 Modern Algebra 3 Credits**

Automorphisms, homomorphisms, field, rings, ideals, residue class rings, matrix theory, determinants and vector spaces.

**3 Class Hours**

**Prerequisite: MA 131 Modern Algebra**

**MA 140 Algebra and Trigonometry 4 Credits**

Topics in algebra and trigonometry necessary in technical courses: functions in general, graphs of functions, complex numbers, theory of equations, systems of equations, permutations and combinations, binomial theorem, as well as exponential, logarithmic and trigonometric functions.

**4 Class Hours**

**MA 141 Analytic Geometry and Calculus 3 Credits**

Rectangular coordinates in a plane, the straight line, slope and inclination, equations of curves, discussion of a curve, functions and limits, indeterminate forms, continuity, the derivative, differentiation of algebraic functions.

**3 Class Hours**

**Prerequisite: MA 140 Algebra and Trigonometry**

**MA 142 Analytic Geometry and Calculus 3 Credits**

Applications of derivatives, maxima and minima, differentials, indefinite integral, definite integral, applications of definite integral. Area between curves, volumes by cylindrical washers and shells, length of plane curve, centroid and second moment of area, moment of inertia.

**3 Class Hours**

**Prerequisite: MA 141 Analytic Geometry and Calculus**



## MA 160 Analytic Geometry and Calculus

4 Credits

Rectangular coordinates in a plane, equations and loci, the straight line, discussion of the equation of a locus, functions and limits, continuity, derivative of a function, differentiation of algebraic functions. Explicit and implicit differentiation, inverse functions, successive differentiation, tangents and normals to plane curves, acceleration, maxima and minima of functions of one variable, inflection points.

4 Class Hours

## MA 161 Analytic Geometry and Calculus

4 Credits

Differentials, Rolle's theorem, mean value theorem, indefinite and definite integral, area under a curve, work done by a variable force. Fundamental theorem of integral calculus, mean-value theorem for integrals, plane areas, volume by cylindrical disks and cylindrical shells, lengths of curve, centroid of area, centroid of solid, moment of inertia. The conics, trigonometric functions, inverse trigonometric functions, exponential functions, logarithmic functions, hyperbolic functions.

4 Class Hours

**Prerequisite:** MA 160 Analytic Geometry and Calculus

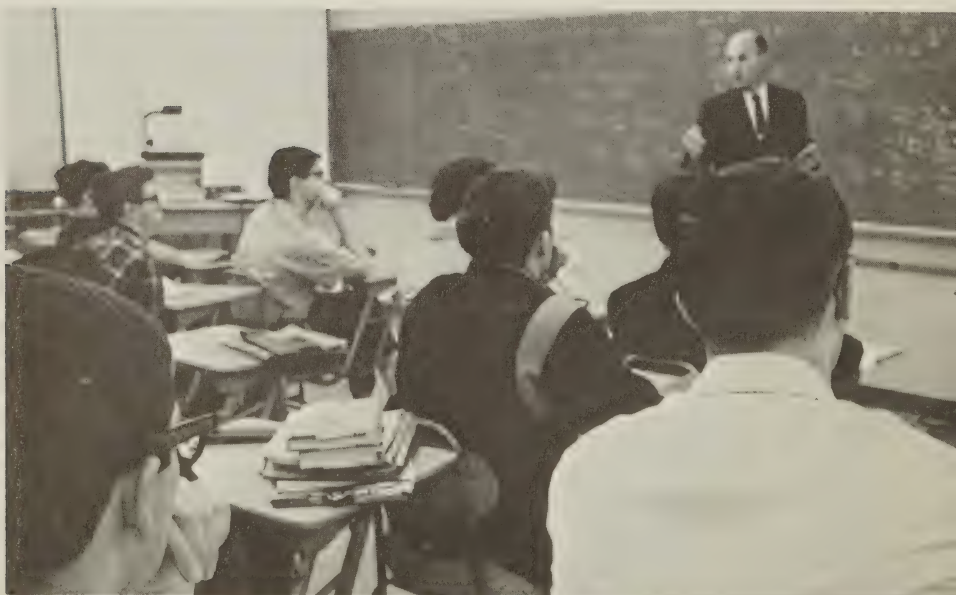
## MA 162 Analytic Geometry and Calculus

4 Credits

Polar coordinates, parametric equations, curvilinear motion, curvature of plane curves. Integration by standard forms, by parts and by trigonometric substitution. Partial fractions, reduction formulas, table of integrals, applications of definite integrals. Plane areas, volumes, length of curve, surface area, centroids, approximate integration, improper integrals, indeterminate forms.

4 Class Hours

**Prerequisite:** MA 161 Analytic Geometry and Calculus



## **MA 170 Analytic Geometry and Calculus 4 Credits**

Inequalities in one and two variables, functions and graphs, the line and linear inequalities. Theorems on limits and continuity, limits at infinity, sequences. Differentiation of algebraic functions, implicit functions, maxima and minima, related rates. Integration, area and work, pressure, changes of variable. Trigonometric and inverse trigonometric functions. Conics.

**4 Class Hours**

## **MA 171 Analytic Geometry and Calculus 4 Credits**

Trigonometric and exponential functions, their derivatives and integrals, inverse functions, logarithmic functions, hyperbolic functions. Parametric equations, arc length, polar coordinates. Vectors, formulas and methods of integration, some applications of integration.

**4 Class Hours**

**Prerequisite: MA 170 Analytic Geometry and Calculus**

## **MA 172 Analytic Geometry and Calculus 4 Credits**

Applications of integration, solid analytic geometry, vectors in 3 dimensions, infinite series..

**4 Class Hours**

**Prerequisite: MA 171 Analytic Geometry and Calculus**

## **MA 240 Analytic Geometry and Calculus 3 Credits**

The conic sections, general and standard equations of conics, transformation of coordinates, differentiation of transcendental functions. Hyperbolic functions, polar coordinates, parametric equations, velocity and acceleration in curvilinear motion, curvature of plane curves.

**3 Class Hours**

**Prerequisites: MA 142 Analytic Geometry and Calculus and permission of student's department chairman**

## **MA 241 Analytic Geometry and Calculus 3 Credits**

Integration by standard forms, integration by parts, trigonometric substitution, partial fractions, use of table of integrals, applications of definite integrals. Trapezoidal and parabolic approximation, improper integrals, indeterminate forms, infinite series, expansion of functions in series.

**3 Class Hours**

**Prerequisite: MA 240 Analytic Geometry and Calculus**

## **MA 260 Analytic Geometry and Calculus 3 Credits**

Infinite series, Taylor's and MacLaurin's series, calculation of logarithms, solid analytic geometry, partial derivatives, multiple integrals.

**3 Class Hours**

**Prerequisite: MA 162 Analytic Geometry and Calculus**

## **MA 261 Differential Equations 3 Credits**

Ordinary differential equations, existence theorems. Variables separable, homogeneous, exact differential, linear and Bernoulli equations. Geometric applications, heat flow, first and second order processes. Non-homogeneous equations, linear equations of higher order, methods of undetermined coefficients and variation of parameters, solutions and theorems by operators, dynamic applications.

**3 Class Hours**

**Prerequisite: MA 260 Analytic Geometry and Calculus**

## **MA 262 Differential Equations 3 Credits**

Numerical methods of solution, Taylor's series, Runge-Kutta method, Adams' and Milne's methods. Special differential equations of the second order, first order differential equations of higher degree than the first, the Clairaut equation. Series solution, the method of Frobenius, Legendre and Bessel equations. Partial differential equations, method of Lagrange-Charpit, Cauchy's problem.

**3 Class Hours**

**Prerequisite: MA 261 Differential Equations**

## **MA 270 Analytic Geometry and Calculus**

**3 Credits**

Partial differentiation, multiple integrals, linear algebra. Directional derivatives, gradient and geometric interpretation. Cylindrical and spherical coordinates.

**3 Class Hours**

**Prerequisite: MA 172 Analytic Geometry and Calculus**

## **MA 271 Differential Equations**

**3 Credits**

The differential equation, hyperbolic functions. Differential equations of the first order, separable equations, particular solutions, dynamics, chemical reactions. Integrable combinations, homogeneous equations, equivalence of solutions, linear equations, electric circuits, Bernoulli's equation, orthogonal trajectories. Linear equation with constant coefficients, rectilinear motion, deflection of beams, undetermined coefficients, variation of parameter, forced vibration and electric circuits. Applications on the analog computer. (Emphasis on engineering sciences.)

**3 Class Hours**

**Prerequisite: MA 270 Analytic Geometry and Calculus**

## **MA 272 Differential Equations**

**3 Credits**

Special higher order equations: reducible to linear with constant coefficients, dependent or independent variable missing. Simultaneous equations, systems of linear equations, roots of unity, linear equation of second order. Exact, Riccati and adjoint equations. Series solutions: power series, Frobenius series. Partial differential equations, partial derivatives, separation of variables, vibrating string. Applications on the analog computer. (Emphasis on engineering sciences.)

**3 Class Hours**

**Prerequisite: MA 271 Differential Equations**

## **MA 273 LaPlace Transforms**

**3 Credits**

Application of LaPlace Transform methods to various engineering problems involving ordinary and linear partial differential equations.

**3 Class Hours**

**Prerequisite: MA 272 Differential Equations**

# **MEDICAL OFFICE ASSISTANT**

## **MO 101 Ethics and Orientation**

**1 Credit**

History and scope of health specialties. Field trips. Professional ethics. Responsibility of health personnel to self, employer, physician and patient. Professional affiliation.

**2 Laboratory Hours**

## **MO 102 Medical Terminology**

**3 Credits**

Medical terminology as correlated with anatomical systems. Suffixes, prefixes and use of medical dictionaries. Introduces standard nomenclature of diseases and operations and medical specialties.

**3 Class Hours**

## **MO 123 Medical Records Science**

**4 Credits**

Continues standard nomenclature. History, use, value and legal aspects of medical records. Analysis, numbering, filing, indexing, transcription.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: MO 102 Medical Terminology**



### **MO 205 Medical Office Procedures 3 Credits**

Medical assisting procedures used in the physician's office including office management, caring for medical and surgical instruments, first aid and aide-training for civil emergencies. Professional ethics, jurisprudence and nomenclature.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites: MO 102 Medical Terminology and BI 250 Microbiology**

### **MO 206 Medical Office Procedures 3 Credits**

Advanced technical procedures in medical assisting including such specialties as electrocardiography, basal metabolism, audiography, physical therapy. Includes field trips and practice experiences.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisite: MO 205 Medical Office Procedures**

### **MO 224 Medical Records Science 3 Credits**

Collection, correlation and quantitative analysis of statistical data by various methods. Responsibilities of the medical records technician to herself, attending physicians, administration, nursing staff and other personnel. Continues directed practice.

**1 Class Hour, 6 Laboratory Hours**

**Prerequisite: MO 123 Medical Records Science**

### **MO 225 Medical Records Science 4 Credits**

Legal aspects of record keeping, departmental organization, layout and management. Inter- and intra-departmental relations and duties. The medical library: organization and classification system. Staff relations and duties. Continues directed practice.

**2 Class Hours, 6 Laboratory Hours**

**Prerequisite: MO 224 Medical Records Science**

### **MO 226 Medical Records Science 3 Credits**

Directed practice experiences of advanced responsibility. Includes minor supervisory roles. Evaluation seminar.

**1 Class Hour, 6 Laboratory Hours**

**Prerequisite: MO 225 Medical Records Science**

### **MO 234 Hematology 3 Credits**

Continuation of BI 134 Bioanalysis with advanced work in hematological techniques.

**1 Class Hour, 4 Laboratory Hours**

**Prerequisite: BI 134 Bioanalysis**

## **MECHANICAL TECHNOLOGY**

### **MT 101 Engineering Drawing 1 Credit**

A basic drafting course for Engineering Secretary students, with the emphasis on engineering vocabulary and understanding of applications rather than on the development of drawing skills.

**3 Laboratory Hours**

### **MT 102 Engineering Drawing 2 Credits**

A basic drawing course for chemical students. Course includes sketching, lettering, the use of instruments, orthographic projection, auxiliary views, threads and fasteners, piping diagrams, flow charts and engineering graphs.

**6 Laboratory Hours**

## **MT 103 Engineering Drawing**

**2 Credits**

Basic orientation in engineering drawing, emphasizing line and instrument exercises, lettering, orthographic projection, dimensioning and notes, auxiliary views, sections, threads and fasteners, assemblies and sketching.

**6 Laboratory Hours**

## **MT 110 Engineering Drawing**

**1 Credit**

Basic orientation in engineering drawing emphasizing lettering, line and instrument exercises, orthographic projection, dimensioning and notes, auxiliary views and sections.

**3 Laboratory Hours**

## **MT 111 Engineering Drawing and Descriptive Geometry**

**2 Credits**

Basic rules and practice for drawing threads, fasteners and assemblies including sketching techniques. Principles of descriptive geometry designed to determine true lengths, true size and relationships between lines and surfaces, to find intersections, to ascertain clearances, and to decide relationships affecting the design of parts in a machine or structure.

**1 Class Hour, 3 Laboratory Hours**

**Prerequisite: MT 110 Engineering Drawing**

## **MT 112 Descriptive Geometry**

**2 Credits**

Basic principles of descriptive geometry designed to determine true relationships between lines and surfaces, to find intersections, to locate elements or tangents, to ascertain clearances, or to decide relationships affecting the design of parts in a machine or structure.

**1 Class Hour, 2 Laboratory Hours**

**Prerequisite: MT 103 Engineering Drawing**

## **MT 129 Shop**

**2 Credits**

Observation and discussion of the machines and materials used in industry to produce machines, appliances, containers. Practice in processing metals, leading to acquaintance with technical and shop terms and a knowledge of what is done in machine shops.

**1 Class Hour, 3 Laboratory Hours**

## **MT 130 Manufacturing Processes**

**3 Credits**

Basic manufacturing materials and processes, such as melting and casting metal, powder metallurgy, plastics, elementary aspects of metal cutting machine tools. Practice and study of oxyacetylene, arc, resistance welding.

**2 Class Hours, 2 Laboratory Hours**

## **MT 131 Manufacturing Processes**

**2 Credits**

Elements of machine tool operation involving the use of the lathe, miller, shaper, drill press and fundamental bench operations. Study of cutting speeds, feeds, coolants, threads, tapers and tool grinding.

**1 Class Hour, 3 Laboratory Hours**

**Prerequisites: MT 130 Manufacturing Processes, MA 140 Algebra and Trigonometry and MT 110 Engineering Drawing**

## **MT 132 Manufacturing Processes**

**2 Credits**

Continuation of MT 131 plus operations of the surface grinder and the cylindrical grinder, advanced lathe operations, jig boring, gear cutting, lapping, honing and scraping. Practice and study of turret lathe and automatic screw machine operations.

**1 Class Hour, 3 Laboratory Hours**

**Prerequisite: MT 131 Manufacturing Processes**

## MT 135 Materials and Processes

4 Credits

Advanced study of the properties and applications of engineering materials and the processes involved in their utilization, including electrical discharge machining, tape-controlled milling and drilling, and ultrasonic machining.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites:** MT 130 Manufacturing Processes and MT 165 Metallurgy and MT 257 Strength of Materials

## MT 151 Orientation

0 Credits

A definition of the engineering technician, his college, training, responsibilities and future. The use of the slide rule and study techniques.

**1 Class Hour**

## MT 155 Applied Mechanics (Statics)

3 Credits

Free body diagram, trusses, spatial force systems, friction, centroids, moments of inertia, shear and moment diagrams and hydrostatics.

**3 Class Hours**

**Prerequisites:** MA 140 Algebra and Trigonometry and PH 140 Physics

## MT 156 Applied Mechanics (Dynamics)

3 Credits

Forces and force systems as they influence the motion of solid and fluid bodies. Kinematics, kinematics of rigid bodies, kinetics, work and energy, impulse-momentum, mechanical vibrations.

**3 Class Hours**

**Prerequisite:** MT 155 Applied Mechanics





## MT 165 Metallurgy

4 Credits

Fundamentals of the physical metallurgy of ferrous and nonferrous alloys, investigation of the physical properties of metals, hardness tests, thermal analysis, grain structure examination.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: PH 141 Physics and CH 104 Chemistry**

## MT 220 Mechanical Design

3 Credits

Machine motion and basic mechanisms. Machine motion includes rectilinear and curvilinear displacement, velocity, acceleration. Basic mechanisms include linkages, cams, gears.

**2 Class Hours, 3 Laboratory Hours**

**Prerequisites: MT 110 Engineering Drawing and MT 156 Applied Mechanics and MT 257 Strength of Materials**

## MT 221 Mechanical Design

4 Credits

Principles of mechanical design covering the selection of materials, stress investigation, design of fundamental machine elements.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: MT 220 Mechanical Design and MT 132 Manufacturing Processes**

## MT 240 Precision Measurement

2 Credits

Theory and practice of precision measurement of the dimensional character of manufactured parts. Measurement of physical quantities such as time, mass, temperature, flow, pressure and speed which are utilized in the control of physical systems.

**1 Class Hour, 3 Laboratory Hours**

**Prerequisites: MT 132 Manufacturing Processes and PH 141 Physics and PH 142 Physics**

## MT 254 Strength of Materials

4 Credits

Relationship between stress and strain, calculation of stresses in machine parts, beams and columns, use of shear and moment diagrams, determination of moments of inertia and centers of gravity, analysis of the effect of loading on stress distribution. Tests on wood, concrete, plastics and metal on standard testing machines in accordance with ASTM testing procedures.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: PH 170 Physics (Mechanics) and MA 171 Analytic Geometry and Calculus**

## MT 257 Strength of Materials

4 Credits

Stress and strain, elasticity, torsion, welded joints, riveted joints, beam stresses, centroids, moments of inertia, shear and moment diagrams. Laboratory work includes strain gauges, tests on wood, metals and plastics conducted in accordance with ASTM and AASHTO standards.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: MT 155 Applied Mechanics and MA 141 Analytic Geometry and Calculus**

## MT 260 Thermodynamics I

4 Credits

Laws and methods, thermodynamic properties of gases, energy equations, equation of state for gases, process equations, gas cycles for power and refrigeration, analysis of processes in and performance of fluid flow and thermal equipment. Laboratory experiments on the application of theory to fluid flow and thermal processes and equipment.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite: MT 261 Fluid Mechanics**

## **MT 261 Fluid Mechanics**

**3 Credits**

Behavior of compressible and non-compressible fluids under static and dynamic conditions, including principles of hydrostatics, pressure measurements, flow, flow measurement, viscosity, hydrodynamic power and force.

**3 Class Hours**

**Prerequisites:** PH 141 Physics and MA 142 Analytic Geometry and Calculus and

**MT 156 Applied Mechanics**

## **MT 262 Thermodynamics II**

**4 Credits**

Laws and methods, thermodynamic properties of vapors, energy equations, process equations, vapor cycles for power and refrigeration, analysis of processes in and performance of fluid flow and thermal equipment. Laboratory experiments on the application of theory to fluid flow and thermal processes and equipment.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite:** MT 260 Thermodynamics I

## **MT 267 Statistical Quality Control**

**4 Credits**

Probability and statistics as they relate to sampling theory and the control of quality in the manufactured product. Standard deviation, areas under, and ordinates of the normal curve, the Poisson, control charts. Single, double and sequential sampling plans, machine capability, product reliability, statistical dimensioning.

**3 Class Hours, 2 Laboratory Hours**

**Prerequisites:** MT 240 Precision Measurement and

**MA 142 Analytic Geometry and Calculus**

## **MT 290 Organization and Management**

**3 Credits**

Principles, functions and coordination of industrial organization. Topics covered include fundamentals, control and financing the organization, engineering the product and production, controlling production, materials and quality.

**3 Class Hours**

## **MT 291 Organization and Management**

**3 Credits**

Principles, functions and coordination of industrial organization. Topics covered include industrial relations, sales and promotion, internal financing and budgetary control.

**3 Class Hours**

**Prerequisite:** MT 290 Organization and Management

# **PHYSICAL EDUCATION**

## **PE 101 Physical Education for Modern Living**

**1 Credit**

A course to familiarize students with the need for and benefits of physical activity in modern living. A self-evaluation of one's physical condition and potential. Guidance in the selection of physical activities for leisure time use. The development and maintenance of physical fitness.

**2 Class Hours**



**PE 102, 103 Physical Education**  
**PE 204, 205, 206**

**1 Credit**

Instruction in a variety of carry-over sports, such as archery, badminton, bowling, golf, horseshoes, tennis, weight training. Participation and rudimentary instruction in football, soccer, basketball, volleyball, softball, tumbling, free exercise, field hockey, wrestling, physical conditioning and first aid.

Note: Students enrolled in Physical Education must wear a regulation gym uniform, which can be purchased at the College Book Store. **2 Class Hours**

**PE 109 Standard First Aid Course**

**1 Credit**

Fundamentals of first aid as outlined by the standard Red Cross course. For Dental Hygiene students, additional specialized seminars may be conducted.

**1 Class Hour**

## **PHYSICS**

**PH 106 Physics**

**3 Credits**

Heat and Sound: Solids, liquids, gases, temperature, heat and energy, waves, sound.

Mechanics: The laws of motion, vectors, energy and momentum, rotational mechanics, elastic vibrations.

**2 Class Hours, 2 Laboratory Hours**



## **PH 107 Physics**

**3 Credits**

Electricity: Electrostatics, electric currents, magnetism, electronics.  
Light: Reflection and refraction of light, wave nature of light.  
Modern Physics: Energy quantum, Bohr atom, wave nature of particles, natural radioactivity, artificial nuclear transformations, nuclear reactions.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisite: PH 106 Physics**

## **PH 110 Physics (Radiation)**

**3 Credits**

Quantum effects, atomic structure, nuclear structure, theory and operation of radiation detecting instruments, radioactive decay, standardization and calibration techniques, activation analysis.

**2 Class Hours, 2 Laboratory Hours**

**Prerequisites: MA 101 Mathematics and  
PH 106 Physics and CH 102 Chemistry**

## **PH 113 Physical Science**

**4 Credits**

The Solar System: The Ptolemaic System of the universe, basic astronomical observations, the Copernican System, the Solar System.

Force and Motion: Newton's Laws of Motion, gravitation, work and energy.

Molecules and Energy: Concepts of heat and temperature, gaseous state of matter.

**3 Class Hours, 2 Laboratory Hours**

## **PH 114 Physical Science**

**4 Credits**

Molecules and Energy: Kinetic-molecular theory of gases, basic laws and theories in chemistry, atoms and molecules, the periodic table.

Electrical Nature of Matter: Electrostatics, current, electricity and magnetism.

Structure of Matter: Wave motion, theories of light, spectra, Faraday's laws, divisibility of the atom, Bohr theory, X-rays, atomic number, electronic configuration of the elements.

**3 Class Hours, 2 Laboratory Hours**

**Prerequisite: PH 113 Physical Science**

## **PH 115 Physical Science**

**4 Credits**

Atomic Structure and Chemical Combination: Electronic theory of bonding, oxidation and reduction, solutions, ionic theory, acid-base reactions, chemical energy, carbon chemistry.

Matter and Energy in the Study of the Earth: Rocks and minerals, natural energy transformations, weathering and erosion.

Energy Within Atomic Nuclei: Natural radioactivity, nuclear energy, fission and fusion, the universe beyond the solar system.

**3 Class Hours, 2 Laboratory Hours**

**Prerequisite: PH 114 Physical Science**

## **PH 116 Physics (Medical)**

**3 Credits**

Principles and concepts of Physics as related to nursing care and equipment used by the nurse.

**2 Class Hours, 2 Laboratory Hours**

## **PH 140 Physics (Mechanics)**

**4 Credits**

Composition and resolution of vectors, equilibrium, concurrent and nonconcurrent forces, friction, statics, kinematics and linear motion, projectile motion, curvilinear motion, work and energy.

**3 Class Hours, 2 Laboratory Hours**

**PH 141 Physics (Mechanics, Heat and Sound) 4 Credits**

Power, impulse and momentum, oscillatory motion, fluid mechanics, thermometry, thermal expansion, thermodynamics, change of phase, heat transfer. Wave motion, intensity and quality of sound waves. **3 Class Hours, 2 Laboratory Hours**

**Prerequisite: PH 140 Physics**

**PH 142 Physics (Electricity and Magnetism; Light) 4 Credits**

Coulomb's Law, electric fields, potential energy and potential, DC and AC circuits, conduction in solid liquids and gases. Photometry, geometrical optics, refraction and reflection, nature of light. **3 Class Hours, 2 Laboratory Hours**

**Prerequisite: PH 141 Physics**

**PH 170 Physics (Mechanics) 4 Credits**

Statics and dynamics: vectors, particle kinematics, motion in a plane, particle dynamics, Newton's Laws of Motion, friction, centripetal forces. Work energy, impulse and momentum, principles of conservation of energy and momentum, collision phenomena, rotational kinematics, torque, rotational dynamics of rigid body. **Concurrent enrollment in MA 170 Analytic Geometry and Calculus required.**

**3 Class Hours, 3 Laboratory Hours**

**PH 171 Physics (Mechanics and Heat) 4 Credits**

Oscillations, gravitation, fluid statics and dynamics, waves in elastic media. Temperature, calorimetry, heat transfer, fusion, vaporization, elementary thermodynamics and kinetic theory. **3 Class Hours, 3 Laboratory Hours**

**Prerequisites: PH 170 Physics and MA 170 Analytic Geometry and Calculus**

**PH 172 Physics (Electricity and Magnetism) 4 Credits**

Fundamental laws of electric and magnetic fields with application to elementary circuit problems. Electrostatic fields, induced emfs, inductance, capacitance, dielectrics, steady currents, simple transients. Laboratory work consists of electrostatic, electromagnetic and circuit measurements.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: PH 171 Physics and MA 171 Analytic Geometry and Calculus**

**PH 192 Statics 4 Credits**

Vector analysis, force and moment of force sets in 3 dimensions. Analysis of statically determinate systems, trusses, frames, and mechanisms. Distributed force systems including cables and beams. Hydrostatics and aerostatics including introduction of the stress tensor. **4 Class Hours**

**Prerequisites: PH 171 Physics and MA 171 Analytic Geometry and Calculus**

**PH 210 Electrical Circuits 4 Credits**

Study of basic electrical terminology and circuit components: Kirchoff's Laws, charge and current relationships. Circuit equations: theorem for linear circuits, energy equations, oscillatory responses. Complex algebra: definitions of operations, Euler's theorem. Steady alternating current: instantaneous, average and RMS values of circuit parameters, phasors. Two terminal networks: network elements, series-parallel networks, admittance and impedance, ladder method. Resonance: half-power points, "Q" of a coil, parallel and series circuits. Three terminal networks: wye and delta substitutions, impedance formulae.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites: PH 172 Physics and MA 270 Analytic Geometry and Calculus**

## **PH 211 Electrical Circuits**

**4 Credits**

Network equations: branch equations, loop equations, node equations. Solution of network equations: driving point, and transfer impedances, matrix solutions. Coupled circuits and transformers. Network theorems: superposition theorem, reciprocity theorem, substitution theorem, Millman's theorem. Fourier series. Exponential Fourier series and the Fourier integral: Fourier transform pair, the LaPlace transform. The LaPlace transformation: LaPlace transform pair, tables of transform pairs, circuit solutions, partial fractions, initial value theorem, inverse transformation.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites:** PH 210 Electrical Circuits and  
MA 270 Analytic Geometry and Calculus

## **PH 270 Physics (Light and Sound)**

**4 Credits**

Wave motion as applied to sound and acoustical phenomena. Geometrical optics, optical parts, optical instrumentation. Physical optics, nature of light, interferometry, polarization of light.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites:** PH 172 Physics and MA 172 Analytic Geometry and Calculus

## **PH 271 Physics (Atomic)**

**4 Credits**

Special theory of relativity, quantum description of waves and particles, models of the atom, elementary quantum mechanics. The quantized atom, the Pauli exclusion principle, Zeeman effect, elementary molecular physics.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisites:** PH 172 Physics and MA 270 Analytic Geometry and Calculus

## **PH 272 Physics (Nuclear)**

**4 Credits**

Nucleons and nuclear force, binding energy and stability of nuclei, nuclear models, radioactive growth and decay laws, natural radioactivity, decay modes. Nuclear accelerators, low-energy nuclear reactions, fission and fusion, cosmic rays and elementary particles.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite:** PH 271 Physics or equivalent

## **PH 280 Astronomy**

**4 Credits**

Fundamentals of astronomy including the earth's motion, earth satellites, the planets and the solar system, stellar structure and the sidereal universe. The laboratory will stress some practical aspects of astronomy, the use of the telescope and observing techniques.

**3 Class Hours, 3 Laboratory Hours**

**Prerequisite:** MA 142 Analytic Geometry and Calculus

## **PH 290 Dynamics**

**4 Credits**

Introduction to vector calculus, vectors in curvilinear coordinate systems. Particle motion, particle dynamics, harmonic forces, force fields, the two body problem. Relative motion, dynamics of plane systems, impulse-momentum theorems and energy theorems for the rigid body.

**4 Class Hours**

**Prerequisite:** PH 192 Statics

# **NURSING**

## **RN 121 Fundamentals of Nursing I**

**6 Credits**

Introduction to basic nursing skills and components of nursing care common for all patients.

**4 Class Hours, 6 Laboratory Hours**



## **RN 122 Fundamentals of Nursing II 6 Credits**

Continues study of basic nursing skills and relates these to the therapeutic needs of the medical-surgical patient.

**4 Class Hours, 6 Laboratory Hours**

**Prerequisite:** RN 121 Fundamentals of Nursing I

## **RN 123 Maternal and Child Care 6 Credits**

Principles and practices of nursing care related to the individual from birth to maturity, including the maternity cycle. Professional ethics and responsibilities.

**4 Class Hours, 6 Laboratory Hours**

**Prerequisite:** RN 122 Fundamentals of Nursing II

## **RN 224 Physical and Mental Illness 10 Credits**

Health problems in medical, surgical, psychiatric and community nursing.

**5 Class Hours, 15 Laboratory Hours**

**Prerequisite:** RN 123 Maternal and Child Care

## **RN 225 Physical and Mental Illness 10 Credits**

Continues health problems in medical, surgical, psychiatric and community nursing.

**5 Class Hours, 15 Laboratory Hours**

**Prerequisite:** RN 224 Physical and Mental Illness

## **RN 226 Physical and Mental Illness 10 Credits**

Continues health problems in medical, surgical, psychiatric and community nursing.

**5 Class Hours, 15 Laboratory Hours**

**Prerequisite:** RN 225 Physical and Mental Illness

# **X-RAY TECHNOLOGY**

## **XR 113 Physics (X-Ray Tube) 1 Credit**

X-ray tube physics, including preventive maintenance on component circuits and the accessories of an X-ray unit. **Must be taken concurrently with PH 110 Physics.**

**1 Class Hour**

## **XR 121 Radiography 4 Credits**

Basic principles of radiographic exposure. Roentgenographic positioning. Dark room chemistry. **Must be taken concurrently with XR 141 Hospital Radiographic Technique.**

**3 Class Hours, 4 Laboratory Hours**

## **XR 122 Radiography 4 Credits**

Continuation of roentgenographic positioning and principles of radiographic exposure. Contrast media. **Must be taken concurrently with XR 142 Hospital Radiographic Technique.**

**3 Class Hours, 4 Laboratory Hours**

**Prerequisites:** XR 121 Radiography and XR 141 Hospital Radiographic Technique

## **XR 123 Radiography 3 Credits**

Continues XR 122 Radiography emphasizing roentgenographic positioning with and without contrast media. **Must be taken concurrently with XR 143 Hospital Radiographic Technique.**

**2 Class Hours**

**Prerequisites:** XR 122 Radiography and XR 142 Hospital Radiographic Technique

## **XR 124 Radiography 2 Credits**

Advanced techniques in roentgenographic positioning. **Must be taken concurrently with XR 144 Hospital Radiographic Technique.**

**2 Class Hours**

**Prerequisites:** XR 123 Radiography and XR 143 Hospital Radiographic Technique

## **XR 131 Radiological Science I Credit**

Orientation to the field of X-Ray Technology including personal, professional and legal responsibility of the technician. History and nature of X-rays, need for and means of protection, interdepartmental organization. **2 Laboratory Hours**

## **XR 132 Radiological Science I Credit**

Patient care procedures used by the X-ray technician in various situations including an understanding of the physiology of diseased cells and tissues necessary for efficient X-ray examination. **2 Laboratory Hours**

**Prerequisite: XR 131 Radiological Science**

## **XR 133 Radiological Science I Credit**

Biomedical aspects of the effects of ionizing radiation together with general and specialized techniques used for protection of patient and personnel. **Must be taken concurrently with PH 110 Physics. 1 Class Hour**

**Prerequisite: XR 132 Radiological Science**

## **Radiographic Technique**

Experience in the Radiology Department of a cooperating hospital. Observation and practice in positioning the sick and injured patient, obtaining the exact radiograph requested by the physician and assisting in the treatment of disease. Film exposure time, film manipulation and the finished radiograph are critically studied. Throughout the two academic years and summer sessions certain approved radiographs must be completed. These by location include radiographs of: extremities, gastrointestinal tract, urinary tract (intravenous and retrograde pyelograms, urethrograms), skull (sinuses, facial bones, mandible), spine, pelvis (hips, hip-nailing), shoulder, thoracic cage and cavity (lungs and heart, sternum).

## **XR 141, 142, 143 Hospital Radiographic Technique 4 Credits**

Practice in positioning, radiographic exposure and film critique in the radiology department of a cooperating hospital. **These three courses must be taken concurrently with XR 121, 122, 123 Radiography, respectively. 16 Laboratory Hours**

## **XR 144 Hospital Radiographic Technique**

Summer practice in radiographic technique and film critique at cooperating hospitals. **Must be taken concurrently with XR 124 Radiography. A graduation requirement. 1 Hour Film Critique and 36 Hours in Hospital X-ray Area**

**Prerequisites: XR 143 Hospital Radiographic Technique and XR 123 Radiography**

## **XR 204 Anatomy (Topographic) I Credit**

Radiological anatomy as depicted by a series of illustrated and applied lectures emphasizing surface landmarks and the relationship of organs to each other. **Must be taken concurrently with XR 224 Radiography. 1 Class Hour**

**Prerequisites: BI 132 Zoology (Anatomy) and XR 124 Radiography and XR 144 Hospital Radiographic Technique**

## **XR 224 Radiography 2 Credits**

Problems and experiments related to manipulation of exposure factors. Advanced principles of radiographic exposure and construction of technique charts. **Must be taken concurrently with XR 204 Anatomy (Topographic) and XR 244 Hospital Radiographic Technique. 1 Class Hour, 4 Laboratory Hours**

**Prerequisites: XR 124 Radiography and XR 144 Hospital Radiographic Technique**

## **XR 225 Radiography**

**3 Credits**

Specialized technical procedures in radiography including equipment, positioning and media. **Must be taken concurrently with XR 245 Hospital Radiographic Technique.**

**2 Class Hours, 4 Laboratory Hours**

**Prerequisites:** XR 224 Radiography and XR 244 Hospital Radiographic Technique

## **XR 234 Radiological Science**

**2 Credits**

Problems seminar: general radiographic technique with film critique; special technique for pediatric radiography. The role of the technician in civilian emergencies.

**2 Class Hours**

**Prerequisites:** XR 133 Radiological Science and XR 124 Radiography and XR 144 Hospital Radiographic Technique

## **XR 235 Radiological Science**

**2 Credits**

Preparation for office management including departmental organization, function, supervision, protection, finances. Continuation of training in office procedures, intra- and inter-departmental relationships, policies, attitudes.

**2 Class Hours**

**Prerequisite:** XR 234 Radiological Science

## **XR 236 Radiological Science**

**2 Credits**

Advanced film critique. Pertinent current problems in radiography and special radiographic procedures including intra-oral radiography.

**2 Class Hours**

**Prerequisites:** XR 235 Radiological Science and XR 225 Radiography and XR 245 Hospital Radiographic Technique

## **XR 237 Trends in Radiological Science**

**3 Credits**

Preparation of the technical report and its organization for both written and oral presentation. Readings in current literature and journals of radiological science.

**3 Class Hours**

**Prerequisites:** XR 225 Radiography and XR 235 Radiological Science

## **XR 238 Radiological Science**

**2 Credits**

Continues XR 236—advanced film critique, current problems and special procedures.

**2 Class Hours**

**Prerequisite:** XR 236 Radiological Science

## **XR 244, 245, 246 Hospital Radiographic Technique**

**6 Credits**

Advanced practice in radiographic technique and film critique. **XR 244 and XR 245 must be taken concurrently with XR 224 and XR 225 Radiography, respectively.**

**24 Laboratory Hours**

**Prerequisites:** XR 144 Hospital Radiographic Technique and XR 124 Radiography

## **XR 247 Hospital Radiographic Technique**

Summer practice in advanced radiographic technique and film critique. A graduation requirement.

**1 Hour Film Critique and 36 Hours in Hospital X-ray Area**

**Prerequisite:** XR 246 Hospital Radiographic Technique

## **XR 254 Radiotherapy**

**2 Credits**

Effects of radiation on body tissue, protection practices and patient care.

**2 Class Hours**

**Prerequisites:** XR 204 Anatomy (Topographic) and XR 133 Radiological Science and PH 110 Physics



# **GENERAL STUDIES CERTIFICATE COURSES**

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## **GS 101 Physical Science 0 Credits**

Introductory course of a three-term sequence. The concepts of dynamics and statics. Motion, forces, impulse and momentum, work and energy. **6 Class Hours**

## **GS 102 Physical Science 0 Credits**

Heat and the extension of the principle of conservation of energy, covering approximately one-half term. Then the course is divided into a three-hour course on theories of fields in electricity and magnetism, and a three-hour course on the structure of matter and an introduction to chemistry. **6 Class Hours**

**Prerequisite: GS 101 Physical Science**

## **GS 103 Physical Science 0 Credits**

Further elaborations of fields and their applications, introductory quantum physics of light and matter, atomic structure and the nucleus. **3 Class Hours**

**Prerequisite: GS 102 Physical Science**

## **GS 110, 111, 112 Elements of Technical Mathematics 0 Credits**

A three-term sequence of integrated mathematics involving a mature treatment of the topics of algebra, trigonometry and some topics of analytic geometry. Special attention to technical computations using the slide rule, logarithms, science notation and dimensional analysis. **5, 5, 5 Class Hours**

## **GS 120 Technical Calculations 0 Credits**

Technical problem solving, applying principles and concepts of the student's concurrent courses in mathematics and GS 101 Physical Science.

**4 Laboratory Hours**

## **GS 121 Technical Calculations 0 Credits**

Concurrent with GS 102 Physical Science. Problems involving heat and energy. At approximately mid-term the course is divided into two two-hour sessions emphasizing problems in chemistry and electricity, respectively.

**4 Laboratory Hours**

**Prerequisite: GS 120 Technical Calculations**

## **GS 122 Technical Calculations 0 Credits**

Concurrent with GS 103 Physical Science. Problems involving theories of fields, elementary quantum theory, theories of atomic structure and the nucleus.

**2 Laboratory Hours**

**Prerequisite: GS 121 Technical Calculations**

## **GS 130 Engineering Drawing 1 Credit**

Fundamentals of Engineering Drawing: simple multiview drawing and sketching, with stress on accuracy and neatness in lettering and linework.

**3 Laboratory Hours**

## **GS 131 Engineering Drawing 1 Credit**

Orthographic projection, auxiliary views, sectional views, pictorial drawing, free hand drafting with continued emphasis on accuracy and neatness.

**3 Laboratory Hours**

**Prerequisite: GS 130 Engineering Drawing**

## **GS 132 Engineering Drawing**

**1 Credit**

Developments and intersections, threads and fastenings, welding drawings, working drawings, exploded views. Continued emphasis on accuracy and neatness.

**3 Laboratory Hours**

**Prerequisite: GS 131 Engineering Drawing**

## **GS 140 Chemistry**

**0 Credits**

Rudiments of electrochemistry, thermochemistry, solutions, atomic structure and bonding, descriptive coverage of the more common elements and families.

**3 Class Hours, 2 Laboratory Hours**

**Prerequisite: GS 102 Physical Science**

## **GS 150, 151, 152 English**

**0 Credits**

A three-term sequence of courses designed to improve the student's mastery of language. Concentration on grammar, spelling, punctuation and the organization of ideas for effective expository writing. Development of reading skills: speed, comprehension, vocabulary building.

**3 Class Hours**

## **GS 153, 154, 155 Verbal Reasoning**

**0 Credits**

A three-term sequence of courses designed to improve the student's ability in reasoning. Concentration on classifying, making generalizations, drawing conclusions, recognizing assumptions, distinguishing between cause and effect.

**3 Class Hours**

**Prerequisites: GS 153 Verbal Reasoning for GS 154**

**GS 154 Verbal Reasoning for GS 155**



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B.S., SUNY College at Cortland

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M.D., Temple Medical

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SIGRID BENSEN  
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B.S., Hartwick College

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D.D.S., University of Pennsylvania

NAOMI BLOOM  
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M.S., University of Pennsylvania

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Licensed Technician

JOSEPH DURDACH

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Scranton State General Hospital  
Licensed Technician

ARMAND EMMA

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B.S., Union College

ANNETTE FANNING

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M.A., SUNY at Albany

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of Dentistry

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Licensed Technician

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# STATE UNIVERSITY OF NEW YORK

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A.B., M.A., LL.D.

SEBASTIAN V. MARTORANA—Executive Dean for Two-Year Colleges

B.S., M.A., Ph.D.

KENNETH T. DORAN—Associate Executive Dean for Two-Year Colleges

B.S., M.S., Ed.D.

Broome Technical Community College is one of the 57 campuses that comprise the State University of New York (SUNY), which was established by the State Legislature in 1948. Its 57 units include 28 locally-sponsored two-year community colleges like Broome Tech.

In addition, there are four university centers, two medical centers, 10 colleges of arts and science, seven specialized colleges, and six two-year agricultural and technical colleges.

The establishment of seven more community colleges has been approved, as well as three more colleges of arts and sciences. The community colleges will be opened in Clinton, Columbia-Greene, Cortland-Tompkins, Essex-Franklin, Genesee, Herkimer and Ontario counties.

Four-year campuses are planned for Nassau and Westchester counties and an upper-division college for juniors and seniors in the Utica-Rome-Herkimer area.

Graduate programs are offered in 24 of the four-year colleges, with 12 of them having advanced graduate study leading to the doctoral degree.

Although the campuses of the State University are separated geographically, all are united in their purpose—to improve and extend opportunities for youth to continue their education after high school. The geographic separation, moreover, enables students to enjoy the advantages of attending relatively small colleges, even though State University is one of the largest state universities in the country.

State University is guided by its motto: "Let Each Become All He Is Capable of Being."

It is governed by a Board of Trustees, which is appointed by the Governor. Its function is to plan the total development of State-supported higher education. But each of its colleges is locally administered. Students, therefore, should write directly to the college in which they are interested for admission forms and information.

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# STATE UNIVERSITY OF NEW YORK

UNIVERSITY CENTERS—State University at Albany  
State University at Binghamton  
State University at Buffalo  
State University at Stony Brook

MEDICAL CENTERS—Downstate Medical Center at Brooklyn  
Upstate Medical Center at Syracuse

COLLEGES OF ARTS AND SCIENCE—

College at Brockport	College at New Paltz
College at Buffalo	College at Oneonta
College at Cortland	College at Oswego
College at Fredonia	College at Plattsburgh
College at Geneseo	College at Potsdam

SPECIALIZED COLLEGES—College of Forestry at Syracuse University

Maritime College at Fort Schuyler (Bronx)  
College of Ceramics at Alfred University  
College of Agriculture at Cornell University  
College of Home Economics at Cornell University  
School of Industrial and Labor Relations at Cornell University  
Veterinary College at Cornell University

TWO-YEAR COLLEGES—Agricultural and Technical Colleges at:

Alfred	Cobleskill	Farmingdale
Canton	Delhi	Morrisville

COMMUNITY COLLEGES—(Locally sponsored two-year colleges under the program of State University)

Adirondack Community College at Hudson Falls  
Auburn Community College at Auburn  
Borough of Manhattan Community College at New York City  
Bronx Community College at New York City  
**BROOME TECHNICAL COMMUNITY COLLEGE AT BINGHAMTON**  
Corning Community College at Corning  
Dutchess Community College at Poughkeepsie  
Erie County Technical Institute at Buffalo  
Fashion Institute of Technology at New York City  
Fulton-Montgomery Community College at Johnstown  
Hudson Valley Community College at Troy  
Jamestown Community College at Jamestown  
Jefferson Community College at Watertown  
Kingsborough Community College at Brooklyn  
Mohawk Valley Community College at Utica  
Monroe Community College at Rochester  
Nassau Community College at Garden City  
New York City Community College at Brooklyn  
Niagara County Community College at Niagara Falls  
Onondaga Community College at Syracuse  
Orange County Community College at Middletown  
Queensborough Community College at New York City  
Rockland Community College at Suffern  
Staten Island Community College at New York City  
Suffolk County Community College at Selden  
Sullivan County Community College at South Fallsburg  
Ulster County Community College at Kingston  
Westchester Community College at Valhalla



# MAP OF THE CAMPUS

## 1. TITCHENER HALL

Engineering Science  
Liberal Arts  
Audio-Visual Center  
Nuclear Physics Laboratory

## 2. ADMINISTRATION BUILDING

Administrative Offices  
Computer Center  
Business Division

## 3. SCIENCE BUILDING

Chemical Technology  
Dental Hygiene  
Environmental Health Technology  
Medical Laboratory Technology  
Medical Office Assistant  
Nursing  
X-Ray Technology

## 4. ELECTRICAL BUILDING

Electrical Technology

## 5. STUDENT CENTER

Bookstore  
Cafeteria  
Gymnasium  
Little Theater  
Student Lounge

## 6. MAINTENANCE BUILDING

## 7. TEMPORARY BUILDING

Classrooms  
Study Area

## 8. MECHANICAL BUILDING

Civil Technology  
Mechanical Technology

## 9. NEW LIBRARY

To be completed during the school year

